Complementary and Alternative Medicine in Norway

Changes in CAM Prevalence and User characteristics in Norway from 2002 to 2012

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ABSTRACT

Background: CAM has gained increased popularity in Western countries in recent years. Its use is commonly associated with chronic diseases management and disease prevention. While CAM utilization is becoming more usual, the population-based descriptions of its patterns of use are still lacking; little research has been devoted to exploring whether the prevalence of CAM and socio-demographic characteristics of CAM users change over time, particularly in Norway.

Objective: The aim of this study was to investigate changes in the prevalence and socio-demographic characteristics of CAM users in a large adult population in Norway from 2002 to 2012.

Methods: Data was obtained from two nationally representative cross-sectional household surveys of the noninstitutionalized civilian populations of Norwegians aged 16 years old and over conducted by Statistics Norway ("Level of living 2002 - Cross sectional study - Health", N=6827 and "Survey on living conditions, health, care and social contact 2012", N=5660)**.** A multistage stratified probability sampling design to randomly select a representative sample of Norwegian residents was employed in both surveys. Use of CAM was determined by whether the respondents had visited a CAM practitioner during the last 12 months. Binary logistic regression modeling was used to explore whether and what socio-demographic factors predicted CAM use. A test of difference (Ratio Odds Ratio) between the results of multivariate logistic regression analysis for each year for all variables was employed to analyze the changes from 2002 to 2012.

Results: In 2002, 8,7% (95% CI: 8,0% – 9,0%) of the population visited some type of CAM practitioner during the previous year, and this increased significantly (p=0,007) to 9,8% (95% CI: 9,0% - 11,0%) in 2012. The variables which were associated with increased odds of seeing a CAM practitioner from 2002 to 2012 at a 5% significance level were being 25-44 years old (ROR 1,90), having weight between 56-65 kg (ROR 2,0) or more than 86 kg (ROR 2,05). A decrease in the odds of visiting a CAM practitioner was found for non-smokers (ROR 0,73), and those having visited a chiropractor in the last 12 months (ROR 0,67).

Conclusion: CAM use in the form of visits to CAM practitioners in the last 12 months in the Norwegian population aged 16 years and over has increased significantly between 2002 and 2012. The study did not find any change in possible resorting to CAM services during this time period for females, nor were the social contact group variables regarded as predictive of CAM use in both years and having a consecutive differential change. However, younger people were discovered to be more likely visiting a CAM practitioner in 2012 compared to 2002. These findings indicate apparently a new trend in CAM consumption in Norway that should be studied further.

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ABBREVIATIONS

AdjOR	Adjusted odds ratio
AETAT	the Directorate of labor
BEBAS	Demography/population database in Statistics Norway
BEREG	Demography/population database in Statistics Norway
CAI	Computer assisted interviewing
CAM	Complementary and alternative medicine
CAMbrella	a pan-European research network for CAM
CI	Confidence interval
GP	General practitioner
HUNT	The Nord-Trøndelag Health study *(Helseundersøkelse i Nord-Trøndelag)*
NAV	Norwegian labor and welfare organization
NCCAM	National Center for Complementary and Alternative Medicine (USA)
NIFAB	National Information Center for Complementary and Alternative Medicine *(Nasjonalt informasjonsenter for alternativ behandling)*
NSD	Norwegian Social Science Data Services
OR	Odds ratio
P-value	Probability value
ROR	Ratio odds ratio
SSB	Statistics Norway
UiT	The arctic university of Norway (*Universitetet i Tromsø*)
WHO	World Health Organization

CHAPTER 1: INTRODUCTION

Alternative health care, also commonly known as complementary and alternative medicine (CAM), while encompassing a variety of health care practices, denotes healing practices that have not traditionally been found in conventional Western biomedicine. The main distinctive feature of the alternative care is its' focus on the whole person (body, mind and spirit) and recognition of one's good health, therefore, as a state of balance between the physical, mental, emotional and spiritual aspects of the person. CAM is used not only to treat some symptoms and diseases, but to facilitate healing and alleviate suffering, to maintain, promote and enhance one's overall well-being as well (Lippincott Williams & Wilkins 2003: 2, 3, 7, 16).

Several studies from different countries have revealed a considerable growth in number of people turning to CAM practices in recent years (Bishop *et al.,* 2010), with prevalence of use in western adult populations varying from 9% to 65% (Hanssen *et al.,* 2005). The increased interest in CAM practices is generally explained by the fact that most of such therapies are noninvasive, have few or no adverse effects, use holistic approach of treating the whole person (not only signs and symptoms as in conventional medicine), have more open time perspective (as practitioners are good listeners who pay more attention to the patient's temperament and perceived needs), are in accordance with a new trend in health care that puts emphasis on health maintenance and disease prevention, and, not surprisingly, are dependent on the positive word of mouth. In addition, it must be taken into consideration that the most frequent users of such health care services are people with chronic conditions for whom conventional treatments are of little or no effect (Lippincott Williams & Wilkins 2003: 5-7).

Since the popularity of the CAM services has risen, the expenditures for such services have substantially increased in recent years as well (Eisenberg *et al.,* 1998). In the USA, 83 million adults spent $33,9 billion out-of-pocket on visits to CAM practitioners and on purchases of CAM products in 2007, CAM costs were estimated to be 11,2% of total out-of-pocket expenditures on health care (NCCAM, 2012). According to the latest research of Norway's National Research Center in Complementary and Alternative Medicine (NAFKAM), there were spent NOK 4,7 billion in Norway on CAM services in 2012, including visits to the alternative care specialists, self-help techniques like yoga, tai-chi and herbal remedies (UiT, 2012). It is of great importance to be aware of the prevalence of CAM use, characteristics of CAM users and different CAM therapies in the context of large increases in CAM

expenditures during the last ten years, and the fact that the use of CAM can influence compliance and outcomes of conventional therapies (Hanssen *et al.*, 2005).

Attention in the research in recent decades was mainly paid to the practice of alternative care but not socio-demographic characteristics of the users (Williams *et al.*, 2011), or devoted to the estimation of the prevalence of CAM use and characteristics of users in specific clinical populations (e.g. "CAM use and user profiles in Danish women with primary breast cancer" by Pedersen *et al.*, 2009, or "CAM use by children and adolescents attending the University Hospital of Wales" by Crawford *et al.*, 2006). There are very few studies comparing CAM use across countries in selected populations (e.g. the USA vs. Norway in the article of Steinsbekk *et al.*, 2009), or studies that have analyzed whether prevalence and characteristics change over time (e.g. "Trends in alternative medicine in the USA, 1990-1997" by Eisenberg *et al.*, 1998, or "Changes among male and female visitors to practitioners of complementary and alternative medicine in a large adult Norwegian population from 1997 to 2008" by Steinsbekk *et al.*, 2011).

To strengthen the development of CAM research in Norway the national government initiated the establishment of the National Research Center in Complementary and Alternative Medicine (NAFKAM), which was originally presented as a research group in CAM at the University of Tromsø in 2000. In 2005, the National Information Center for Complementary and Alternative Medicine (NIFAB) was introduced and organized as a unit within NAFKAM by the initiative of the Ministry of Health and the Norwegian Directorate of Health to provide improved CAM-related information to the public, their first websites were launched in 2007 (Cambrella 2012b:151).

To our knowledge no study to date has investigated changes in prevalence of CAM use and compared profiles of CAM users over time in Norway based on data from all of Norway. There was identified only one study by Steinsbekk *et al.* (2011) that explored the changes in prevalence and characteristics of visitors to CAM practitioners from 1997 to 2008 with data taken from two cross-sectional total population surveys HUNT2 and HUNT3 (Nord-Trøndelag Health Study) but only in one county in Central Norway. There was found an increase in the number of both male and female CAM users (from 9,4% of the total population in 1997 to 12,6% in 2008, with the number of females being twice as high compared to males in both years) and an increase in visits among more healthy people and

younger people of both genders with more limited complaints. However, the general trends in studies of CAM users worldwide are associated with middle aged people being the highest users (Bishop *et al.*, 2010). That might show, as the authors of this Norwegian study pointed out, that some fundamental changes in CAM consumption are starting to happen. The results of this work, however, might not be representative for the whole country of Norway; hence the need for a more comprehensive study based on the total national population data is obvious. CAM usage data that is nationally representative, reliable, and up-to-date is of great importance to policy makers, the knowledge of prevalence of CAM use can also among other things assist in prioritizing research into the safety and efficacy of CAM (Hunt *et al.*, 2010).

The data applied in the analysis in this master thesis was provided by Statistics Norway (SSB) and is based on two large representative national surveys in Norway: "Level of living 2002 - Cross sectional study - Health"[1] (*Samordnet levekårsundersøkelse 2002 – Tversnitt Tema: Helse*) and "Survey on living conditions, health, care and social contact 2012"[2] (*Levekårsundersøkelsen om helse, omsorg og sosial kontakt 2012*). Employing this kind of data can be considered as strength of the following work, as it may help in obtaining a clearer picture of the general socio-demographic and health trends in CAM use in Norway which, in turn, can be seen as a broad objective of the master thesis. I will introduce the reader with a complex field of research on CAM by revealing various possibilities of defining CAM, eliciting the general problem of estimation of CAM prevalence and its comparability between studies within one country and between different populations and time periods. A comprehensive literature review on CAM user characteristics in Norway and worldwide will help in discerning whether our analysis is in line with the previous research. New variables not used to date will be included in the study, for example those ones from Social contact topic group. It will be of particular interest to find out if social isolation has something to do with CAM use, e.g. whether people who have few friends and meet with them very seldom

[1] "(Some of) the data applied in the analysis in this publication are based on "Level of living 2002 - Cross sectional study - Health". The survey was financed by Statistics Norway, The Norwegian Institute of Public Health and Department of Community Medicin, UiO. The data are provided by Statistics Norway, and prepared and made available by the Norwegian Social Science Data Services (NSD). Neither Statistics Norway, The Norwegian Institute of Public Health, Department of Community Medicin, UiO nor NSD are responsible for the analyses/interpretation of the data presented here."

[2] "(Some of) the data applied in the analysis in this publication are based on "Survey on living conditions, health, care and social contact 2012". The data are provided by Statistics Norway, and prepared and made available by the Norwegian Social Science Data Services (NSD). Neither Statistics Norway, nor NSD are responsible for the analysis/interpretation of the data presented here."

tend to visit CAM practitioners more often than those who are very social. The more specific objective of the thesis is to explore changes in the prevalence of CAM use and profiles (including socio-demographic characteristics and health status) of Norwegian CAM users in a large adult population in the time period of 2002-2012. An attempt to draw the parallels with other relevant comparative studies' findings on those changes and elicit the problems connected to that will be performed and discussed.

The data analysis involves three steps: descriptive statistics (estimation of the prevalence of CAM visits among the general population, showing the basic socio-demographic characteristics of the whole sample in both years), binary logistic regression models (identification of the factors associated with the use of CAM in Norway, be they socio-economic or health), and comparative analysis (particular emphasis put on exploring changes in characteristics of a typical Norwegian CAM user from 2002 to 2012). Data description and theoretical framework (statistical techniques) are included in Chapter 3 (Methodology), while the results of the analysis are covered by Chapter 4. Prior to these chapters a motivation, objectives and a brief study overview were given in Chapter 1 (Introduction). A comprehensive literature review on CAM prevalence and user profiles, as well as background on CAM provision and legal status is presented in Chapter 2. Findings are discussed in Chapter 5, and Chapter 6 covers the summary and conclusions of the study.

CHAPTER 2: BACKGROUND ON CAM - DEFINITIONS, LEGAL STATUS, PREVALENCE, AND USER CHARACTERISTICS IN NORWAY AND ABROAD

2.1 Definitions

At present there is no clear term for the concept that could fully identify the CAM phenomenon. The possible reasons are non-agreement between the researches in what kind of practices and medications alternative treatment includes, constantly changing attitudes towards the concept due to unclear and non-transparent barriers between conventional medicine and alternative treatment in some cases, and variation in CAM definitions between countries. Chiropractic, for instance, was previously regarded as a kind of alternative treatment in Norway, but now is considered as a state licensed profession, though, in Sweden it is still an alternative form of treatment (Nifab 2013d).

NAFKAM uses the definition stated in the law of alternative treatment of diseases, § 2 (Lovdata, 2013), where alternative treatment is given as "health-related treatment practiced outside a public hospital by non-health personnel, or performed inside a public hospital or by authorized health personnel but with the methods that are largely used outside a public hospital" (Nifab 2013c, translated from Norwegian). The World Health Organization's definition of the other term largely used when referring to alternative treatment in Norway, CAM ("Complementary and alternative medicine"), is given by "a broad set of health care practices that are not part of that country's own tradition and are not integrated into the dominant health care system"(WHO, 2013). National Center for Complementary and Alternative Medicine (NCCAM) in the USA, while giving the difference in comprehension of two terms that are usually used interchangeably meaning non-conventional health treatment ("complementary" medicine - a non-mainstream approach *together with* conventional medicine, "alternative" – a non-mainstream approach *in place of* conventional medicine), states though that the exclusive use of alternative medicine is not common, and most people prefer non-mainstream approaches along with conventional ones (NCCAM 2013:1). CAM is simply defined then as "a group of diverse medical and health care interventions, practices, products, or disciplines that are not generally considered part of conventional medicine" (NCCAM 2013:2).

An Europe–wide practical definition of CAM was established by CAMbrella (a pan-European research network for CAM which focused on the reviewing of the current legal status and policies of CAM in 39 European countries between 2010 and 2012): "CAM utilized by European citizens represents a variety of different medical systems and therapies based on the knowledge, skills and practices derived from theories, philosophies and experiences used to maintain and improve health, as well as to prevent, diagnose, relieve or treat physical and mental illnesses. CAM has been mainly used outside conventional healthcare, but in some countries certain treatments are being adopted or adapted by conventional healthcare" (Cambrella 2012d:8). CAM is used as an umbrella term for popular treatment practices, such as herbal medicine, homeopathy, manual therapy (massage, osteopathy and reflexology), acupuncture, anthroposophic medicine or naturopathy and many others, which are applied in the care of chronic conditions, disease prevention and health management mostly outside conventional medicine (CAMbrella 2012c).

In the following master thesis I will refer to the NAFKAM's CAM definition. In the main analysis part of the study only visits to CAM practitioners will be taken into account as implied by CAM term.

2.2 CAM Legal status and Regulation

Knowledge, provision and regulation of CAM differ considerably in most European countries, according to the latest research by CAMbrella. Up to the present time, there has been neither a profound research of this field, nor an extensive investigation of the needs of citizens for CAM, nor elicitation of providers' concerns in Europe. The knowledge about the prevalence of CAM use by European citizens is not big either. Thus, the need for a coordinated effort to enhance knowledge about this field has been declared as urgent by researchers of the network (CAMbrella 2012c).

Europe:

- There is no common approach to the regulation of CAM practice in 39 European countries (Cambrella 2012d)

This results in a substantial diversity in regional, national, European, and international legal regulations; any comparison of CAM practice and provision is then very difficult to perform. This heterogeneity of the legal status and regulations for CAM in Europe creates barriers for patients, practitioners and researchers when crossing country boarders. Patients' rights with regard to access and potential safety can be hampered in search of CAM treatments in other countries, as patients may face considerable differences in the professional background of seemingly identical CAM providers who also tend to work under totally different reimbursement systems. Researchers are restricted to perform any observational or experimental studies only within a narrow national or cultural context, as CAM practices are not comparable across national borders; it is also difficult to build professional common ground, when having CAM professions tightly regulated in some countries and the same professions totally unregulated in others. This hinders also the cross-border employment and represents a challenge for CAM practitioners themselves (Cambrella 2012d).

- Herbal and homeopathic products are regulated at the EU level, i.e. similarly in each country, and are subject to the same market authorization procedures as other medicinal products
- 17 of the 39 countries have a general legislation for CAM, of which eleven have a specific CAM law and six have sections on CAM included in their general healthcare

laws (e.g. “Law on health care”, “Law on health professionals”). Some countries have regulations only on specific CAM treatments, see Figure 2.1. Variation in regulation of the 12 most popular CAM practices in 39 European countries is shown in Table 2.1. (Cambrella 2012b).

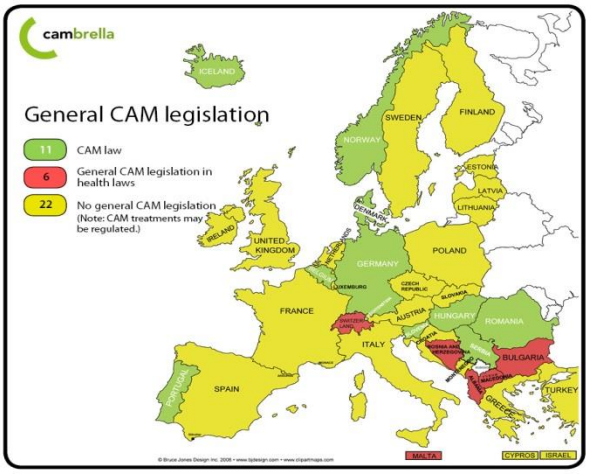
Table 2.1: *Variation in CAM regulation by practice. Europe. 2012*

CAM practice/ profession	Regulated treatment, not regulated profession, countries	Regulated profession, EU registered/non-registered, countries
Acupuncture	24	2
Anthroposophic medicine	7 (Sweden)	-
Ayurveda	5	-
Chiropractic	10	16 (**Norway**, Sweden, Finland[1])
Herbal medicine/ Phytotherapy	10	-
Homeopathy	21	3
Massage	1	19 (Finland[1])
Naprapathy	0	2 (Finland, Sweden[1])
Naturopathy	6	2
Neural therapy	3	-
Osteopathy	6	9 (Finland[1])
Traditional Chinese medicine	10	-

[1]EU registered

Source: *data taken from Cambrella 2012b*

Figure 2.1: *General CAM regulation in 39 European countries. 2012*



Source: *Cambrella 2012b*

A permit to treat patients with CAM is conditioned in national CAM/health legislation and regulations by educational and/or training requirements, and systems for authorizations and licenses. When regulating CAM practices the requirements for registries and self-regulation are often present. Self-regulation can be required to be statutory or voluntary. The level of education and training can also be regulated by state or can be voluntary (Cambrella 2012b).

A higher degree of harmonization of legislation and regulation of CAM in Europe is considered by CAMbrella researches as a possible way forward that could benefit patients, practitioners and researchers. Mutual recognition of physiotherapists across Europe can serve as an example: physiotherapy has been recognized as a conventional regulated health profession in 38 European countries and registered in the EU regulated professions database in 29 countries. This recognition enables the physiotherapists to freely move from one European country to another, and provides patients with specialists with similar background and experience across the countries (Cambrella 2012b).

Norway:

In Norway, the CAM law (Act N0.64 of 27 June 2003 relating to the alternative treatment of disease, illness, etc.) is general without describing in detail the treatments or practitioners, but recognizing that CAM can be provided by both medical and non-medical professionals, within or outside health services. There are also two national regulations on CAM complementing the Act: regulation of a voluntary registration system for practitioners of alternative treatment and protected titles for health professionals in Norway. Medical CAM practitioners are supervised as health personnel in line with the Supervision Act, while CAM practitioners without a health profession fall within the jurisdiction of the Criminal Act. The following practices have no therapy-specific regulation when it comes to regulation of CAM practice/profession in Norway: anthroposophic medicine, ayurveda, herbal medicine/phytotherapy, homeopathy, massage, naprapathy, naturopathy, neural therapy, osteopathy, and traditional Chinese medicine. Acupuncture is not regulated either, though, CAM general legislation influences acupuncture treatment, and it has been partly integrated in hospital treatments. Chiropractic is a regulated profession since 1988, and chiropractors are registered in the EU regulated professions database. The treatment is reimbursed as conventional health treatment. CAM treatment in Norway is fully reimbursed only at hospitals, outpatient CAM treatment at hospitals is reimbursed partially. There is no reimbursement for CAM treatment provided by therapists that are not registered health care professionals (Cambrella 2012b:150-151).

2.3 Prevalence of CAM use

The true estimates for the prevalence of CAM use are very hard to obtain, since this kind of data is simply not available for many European countries. The data that is nevertheless accessible, is generally inconsistent, variable and of poor quality. There are only few rigorous prevalence studies which are based on nationally representative samples.

According to the WHO, CAM is a highly popular strategy for chronic diseases management and disease prevention in European countries, with prevalence varying between 10% and over 50% (Bodeker, 2005). The result of the CAMbrella systematic review of the 87 included prevalence studies from Europe is mostly inconclusive (Cambrella 2012a). There is a lack of reliable data on the prevalence of CAM use: 27 EU member states did not have any data at all, only a few studies were based on nationally representative samples, while others were

small and of poor methodological quality. In addition, different CAM definitions, CAM measured over a variety of time periods (e.g. from "in the last 24 hours" to "ever used") made researchers present the summary data in the format of use of *"any CAM at any time"* and report the prevalence as being between 0,3% - 86% (median 29%, average 30%), with sample sizes varying highly from small studies of 92 participants to total population surveys of 57,717,200 (median 1785) individuals.

The following Table 2.2 shows prevalence rates of the main CAM therapies in Europe, results of the Cambrella research: herbal medicine was the most frequently reported type of CAM used.

Table 2.2: *Prevalence rates of CAM therapies. Europe. 2010-2012*

CAM therapy	N of studies	Prevalence across countries	Commentary
Herbal medicine	31	5,9 – 48,3%	No clear definition (it may be included in naturopathy, folk medicine or traditional Chinese medicine). Various categorizations (as medical herbalism, herbal remedies, herbal teas, phytotherapy)
Homeopathy	25	2,0 – 27,0%	Reported as part of a group of CAM's in 5 studies
Chiropractic	17	0,4 – 20,8%	Sometimes defined as: "chiropractic or osteopathy" (1 study), "manual or manipulative treatments" (2 studies), one of a group of CAM's (4 studies).
Acupuncture	14	0,4 – 23,0%	No clear definition. Identified as part of groups of CAM's (8 studies)
Reflexology	11	0,4 – 21,0%	Part of a group of CAM's in one study

Data source: *CAMbrella 2012d*

The most systematic and comprehensive review to date of studies of prevalence of CAM use by general populations performed by Harris *et al.* (2012) showed evidence of considerable CAM use in the 15 countries studied despite the variable quality of methodological reporting. The studies included reported prevalence of CAM use over a 12-month retrospective period within a representative general population sample of a nation or a defined geographical area, with the estimates of *any CAM use* ranged from 9,8% to 76% (N=32), and from 1,8% to 48,7% (N=33) for *visits to CAM practitioners*.

The following Table 2.3 displays the prevalence rates of any CAM use and CAM visits to practitioners by adults of all ages in selected countries. The surveys of four of them (USA, UK, Canada, and Australia) met the quality criteria established by the researchers, data from the studies of the other 11 countries were regarded as insufficient to indicate national trends in CAM use.

Table 2.3: *Prevalence rates. Selected countries. Systematic review by Harris et al. (2012)*

Country	Year, survey type	Prevalence. All-CAM use, %	Prevalence. CAM visits, %	Study meets ≥ 4 quality criteria out of 6
USA	2007, government national	38,3	16,2	Yes
	2002	36,0	12,5	Yes
UK	2005, government national	26,3	12,1	Yes
	2001		10,0	Yes
Canada	2001-5, government national		12,4	Yes
Australia	2005, other national	68,9	44,1	Yes
	2004, government sub-national	52,2	26,5	Yes
Norway	**2002, government national**[1]		**8,7**	**Yes**
	2007, other national[3]		48,7	No
	1997, other national[2]		12,0	No
	1995-7, sub-national[5]		9,9	No
Denmark	2000, government national		21,0	Yes
Sweden	2000, sub-national[4]	20,0		No

[1-5]study names can be found below in text

USA: All-CAM use (excluding prayer) by adults (18+) over a 12-months period has risen from 36% in 2002 (Barnes *et al.*, 2002) to 38,3% in 2007 (Barnes *et al.*, 2007), while visits to CAM practitioners increased from 12,5% in 2002 to 16,2% in 2007, with a substantial growth in consumption of some therapies including acupuncture and massage therapy.

UK: All-CAM use by adults (16+) constituted 26,3% in England in 2005 (Hunt *et al.*, 2010). The estimate for visits to CAM practitioners was 10% for England, Scotland and Wales in 2001(Thomas *et al.*, 2004), while it amounted to 12,1% for England in 2005, with massage therapists as the most frequently visited CAM practitioners (Hunt *et al.*, 2010).

Canada: 12,4% of the population aged 12 years old and over visited some type of CAM practitioner in Canada, according to the national data from 2001-5 (Metcalfe *et al.*, 2010).

Australia: All-CAM use by adults (18+) constituted 68,9% in 2005, while 44,1% of the population visited a CAM practitioner, as stated in a nation-wide survey in Australia (Xue *et al.*, 2007). The estimate for all-CAM use by adults (15+) living in Southern Australia was 52,2% in 2004, while visits to CAM practitioners was reported to be 26,5% (MacLennan *et al.*, 2006).

Denmark: 21% of the population aged 16 years old and over visited some type of CAM practitioner in Denmark in 2000 (Hanssen *et al.*, 2005).

Norway: The results of only one Norwegian study, which employed data from the national population survey "Level of living 2002 – Cross sectional study - Health", were assessed by Harris *et al.* (2012) as reliable; the estimate for visits to CAM practitioners by adults (18+) was established as 8,7% in 2002 (Steinsbekk *et al.*, 2009[1]).

The surveys in Norway (Hanssen *et al.,* 2005[2]), (Fønnebø *et al.,* 2009[3]), and Sweden (Hanssen *et al.,* 2005[4]) did not meet the quality criteria as there were used either inconsistent measurement methods, or the quality of the survey reports was evaluated as low. For example, sampling method was not reported in the Swedish study; selection bias, not reported response rate in the study of Fønnebø *et al.* (2009); not reported sampling method in the study of Steinsbekk *et al.* (2007[5]).

The surveys mentioned in the review showed high frequency of CAM use and high variation in prevalence estimates between different countries. These discrepancies might be explained not only by different methodologies used (e.g. sampling techniques, range of the age variable) but the way CAM was defined and operationalized itself for the data collection, e.g. 31 reports (61%) had lists of named therapies to elicit CAM use, with the number of therapies varying from 4 to 36. Some studies had furthermore the option "other types of CAM" when addressing the question about CAM use. Others, influencing most the prevalence estimates, included either prayer or religious practices as a type of CAM - a very typical situation for the USA (Harris *et al.,* 2012). The above-mentioned issues can make it rather difficult to compare prevalence rates within one country or between different populations.

Prevalence of CAM use in Norway

There are a few data sources on the prevalence of CAM use during the last 12 months which could reveal national trends in CAM use in Norway. Statistics can be mainly obtained from the large population surveys covering the whole country "Level of living – Cross sectional study - Health" performed by SSB in 2002, 2005, 2008, and 2012 (further on *SSB-2002*, *SSB-2005* etc.), and two national surveys conducted by NAFKAM, "NIFAB – survey 2007" (Nifab 2013b) and "NAFKAM – survey 2012"(Nifab 2013a; further on *NIFAB-2007*, *NAFKAM-2012*). There is also available data on CAM use in two cross-sectional total population studies carried out in one county in Central Norway, Nord-Trøndelag, HUNT2 (1997) and HUNT3(2008); however, the representativeness of these studies for the whole country of Norway is in question (this data source was used in the article of Steinsbekk *et al.*, 2011). Only one article on CAM use employing the data from SSB surveys (SSB-2002) by Steinsbekk *et al.* (2009) is known to date, with not studied development of CAM use over time, though. SSB-2012 survey data has just come to public access at the moment of writing this thesis.

It is not possible to compare the prevalence estimates from different surveys directly with each other. Variation in methodologies, as well as diverse formulations of CAM use question should be taken into account. When having met some prerequisites, the general patterns of CAM use can nevertheless be traced in a period of time. Table 2.4 presents the range of prevalence rates of CAM use in Norway and main characteristics of the surveys in question (SSB Health surveys' results are publicly available on the website of Norwegian Social Science Data Services, NSD).

Table 2.4: *Review of CAM prevalence in Norway by survey. 2002-2012*

Type of survey	Methods	Formulation of the CAM question	Prevalence, %
SSB-2002	Persons aged 16+ residing in the private households. Net sample answered interview: 6827 (70,4%). Net sample answered both interview and questionnaire: 5396 (55,8%)	*Open:* "During the last 12 months, have you visited any type of CAM practitioner?"	**8,7 %**
SSB-2005	Persons aged 16+. Net sample answered interview: 6766 (69,8%) Net sample answered both interview and questionnaire: 4850 (74,7%)	*Open:* "During the last 12 months, have you visited any type of CAM practitioner?" *Named therapists (4):* -acupuncturist -homeopath -reflexologist (foot zone therapist) -other alternative therapist	**10,2 %**[1] 36,1 %[2] 16,8 %[2] 11,6 %[2] 47,4 %[2]
NIFAB-2007	Persons aged 15+ living in private households with a landline telephone or a cell phone; answered the telephone interview: 1007 (other details not available)	Separate questions on use of CAM received by CAM practitioners outside of or health personnel inside health care system last 12 months. *Named therapies (9):* -acupuncture -homeopathy -reflexology -healing/laying on of hands -kinesiology -massage -natural therapy -psychotherapy (not provided by psychologist or psychiatrist) -other Have you over the previous 12 months used any of the following 9 alternative treatment modalities by therapists outside of or inside the health care system?	 10,8 %[3] 4,3 %[3] 5,6 %[3] 4,8 %[3] 1,8 %[3] 23,7 %[3] 2,8 %[3] 1,7 %[3] 22,5 %[3] **48,7 %**[3]
SSB-2008	Persons aged 16+. Net sample answered interview: 6465 (66,8%). Net sample answered both interview and questionnaire: 4498 (69,7%)	*Named therapists last 12 months (8):* -homeopath -acupuncturist -reflexologist (foot zone therapist) -aroma therapist -massage therapist -naprapath -osteopath -healer *Other (separate questions):* -During the last 12 months, have you used herbal medicine, herbal remedies, or herbal medicines as part of your own treatment? -During the last 12 months, have you used meditation, yoga, Qi	 1,3 % 4,8 % 1,9 % 2,6 % 5,3 % 1,9 % 0,9 % 1,6 % 21,9 % 6,0 %

		gong or Tai chi?		
NAFKAM –2012	1002 persons aged 15+ (other details not available)	Separate questions on use of CAM received by CAM practitioners outside of or health personnel inside health care system last 12 months. *Named therapies (8):* -acupuncture -homeopathy -reflexology -healing/laying on of hands -kinesiology -massage -natural therapy -psychotherapy (not provided by psychologist or psychiatrist) *Other CAM therapies (separate question)* *Other (separate questions):* -use of supplements -herbal remedies and herbal medicine - self-help techniques (e.g. meditation, yoga, tai chi, qi gong) Have you over the previous 12 months used any of the following 8 alternative treatment modalities by therapists outside of or inside the health care system? ("other CAM" is included)	 9,7[4] 2,9[4] 3,9[4] 3,7[4] 1,5[4] 22,8[4] 1,6[4] 1,0[4] 4,4[4] 70,0 % 11,0 % 13,0 % **36,6 %**[3]	 3,6[5] 0,6[5] 0,5[5] 0,3[5] 0,4[5] 6,8[5] 0,1[5] 1,1[5] 0,0[5]
SSB-2012	Persons aged 16+ residing in the private households; the net sample answered interview: 5660 (57,9%)	*Open:* "During the last 12 months, have you visited any type of CAM practitioner?" *Named therapists (8):* -homeopath -acupuncturist -reflexologist (foot zone therapist) -aroma therapist -massage therapist -naprapath -osteopath -healer *Other:* -another therapist, specify	**9,8 %** 1,2 % 5,3 % 2,2 % 1,5 % 5,6 % 2,8 % 1,1 % 1,4 % 2,0 %	
HUNT2-1997 **HUNT3-2008**	All residents aged 20+ Answered question on CAM use: 41,734 (63,7%) Answered question on CAM use: 50,713 (99,8%)	"During the last 12 months have you visited, homeopath, acupuncturist, reflexologist, layer on of hands or another alternative treatment practitioner?"	**9,4 %** **12,6 %**	

1. Only 3391 persons answered Yes/No, 3375 answers remained missing
2. Very small percentage of answered questions (less than 6 %)
3. Providers outside or inside the health care system
4. Providers outside the health care system
5. Given by health professionals inside the health care system

2.4 Provision of CAM practices

Europe:

CAM services in Europe are provided by medical and non-medical practitioners, while in some other countries almost exclusively by non-academic therapists. Consequently, training of CAM providers varies broadly in extent and quality, as they have different medical background, expertise, certification, and sometimes absolutely contrasting attitudes to healing processes. At the same time, CAM education and certification is contingent on international,

national or even regional regulations; thus, it is difficult to establish a common approach with regard to provision of CAM services in Europe. However, moving towards more transparent harmonization of CAM medical education, training, and certification in order to improve safety for the users and promote cooperation between researchers and providers, is among the first nowadays' priorities that should be taken into account, as stated in the Cambrella study (Cambrella 2012d).

The research (Cambrella 2012d) showed that CAM practices across European countries are provided by more than 150,000 registered medical practitioners with additional CAM certification and more than 180,000 registered and certified non-medical CAM therapists. That implies nearly 65 CAM practitioners (35 non-medical and 30 medical) per 100,000 inhabitants, as compared to 95 GPs per 100,000 inhabitants. As to the type of the most frequently provided CAM therapy, acupuncture, with 53% of all practitioners (80,000 medical and 16,000 non-medical), and homeopathy, with 27% (45,000 vs. 4,500 respectively), are the two most dominated by physicians CAM therapies. Naturopathy is supplied by physicians as well (15,000, mostly German), followed by anthroposophic medicine (4,500) and neural therapy (1,500). Non-medical practitioners exercise their almost monopoly power in provision of herbal medicine and manual therapies.

Most European countries are in the process of developing national polices on CAM practices, which can clearly help define the role of CAM in national health care delivery and ensure at the same time promotion and maintenance of good practice, equitable access, and guarantee safety and efficacy of the therapies by creation of the necessary regulatory and legal mechanisms. The recent research in the field shows that CAM is highly demanded in Europe, as many as half of all citizens in Europe use CAM for their health care needs (CAMbrella 2012c). However, research-based knowledge on CAM funded by state is primarily existing for Denmark, Germany, Norway, Switzerland, and the UK, as CAM provision in Europe has not yet captured governmental interest at large (Cambrella 2012d).

Norway:

Two studies on use of CAM at Norwegian hospitals are available at the moment. The study of 2001 (Salomonsen *et al*., 2003) showed that among 105 private and public hospitals in Norway 28 (27%) reported provision of CAM services: 19 of which practiced acupuncture, alternative diet was offered in 3 other hospitals, while oil massage practice, music and art

therapy, Nitter cure, vitamins in high doses, and transcutaneous nerve stimulation were used in the remaining hospitals. Mostly authorized health professionals with or without additional CAM education provided such services at Norwegian hospitals. Their intention, inspiration and believe in supplementary effect of CAM treatments explained predominantly a significant growth in CAM provision at hospitals since 1990s (except acupuncture which was more often initiated by the leadership). Almost every fourth Norwegian hospital supplied CAM practices in 2001.

The study performed in 2008 (Salomonsen *et al.*, 2011) showed a significant increase in CAM services being offered at Norwegian hospitals, e.g. out of 99 hospitals, 50 (50,5%) reported any CAM provision, 40 of which practiced acupuncture (80%), remaining hospitals arranged other alternative therapies, such as hypnosis, herbal medicine, art therapy, homeopathy, reflexology, thought field therapy, gestalt therapy, aromatherapy, tai chi, yoga, pilates and others. Nine hospitals offered more than one therapy form. Other interesting result of the research was that more somatic (52,3%) than psychiatric (28,6%), public (60,3%) than private hospitals (29%), and hospitals with more than 100 beds (76,2%) offered CAM therapies more often in Norway. Again, CAM providers at hospitals (except one) had medical professional background, but their education on CAM modalities varied considerably.

The researchers of these two studies claim that the estimates on CAM provision at hospitals are close to be true but admit, however, that due to information bias they might be under-/overestimated, as employees within the same hospital do not always agree on whether a provided therapy is alternative or not, see the details in the article (Salomonsen *et al.*, 2011).

2.5 CAM use and Socio-demographic User Characteristics. General Trends

The search for the studies exploring whether CAM use is associated with commonly analyzed demographic variables (e.g. gender, age, level of education, income) and health factors (e.g. chronic conditions, self-reported global health, recent complaints) was performed in *Pubmed* and *Tidsskriftet for den norske legeforening*; reference lists of the relevant articles were examined as well. There were included surveys carried out in general populations worldwide (community-based non-clinical adult populations, mostly national samples of participants aged 16 years and over but regional as well), with statistical associations between CAM use during last year and demographic and health factors (i.e. inferential statistics, e.g. multivariate

regression analyses, not just percentages and frequencies) in the time period of 2002-2013. Thus, the most relevant articles with more or less alike methodologies, target populations and objectives were chosen and analyzed. Subjectivity in the choice of literature, though, must be taken into account.

The results of the search are in accordance with some common worldwide trends (Bishop, 2010): CAM users are more likely to be women, of middle-age and with higher levels of education. The evidence regarding whether CAM use is more common among the wealthy and whether users consider their own health (physical and psychological) to be poorer than non-users is less consistent. It seems that people with some kinds of chronic conditions tend to use CAM more often.

Gender: the suggestion that CAM use is more common in women was found in all nine chosen studies: Løhre *et al.* (2012), Steinsbekk *et al.* (2011), Steinsbekk *et al.* (2009), Steinsbekk *et al.* (2007), Hanssen *et al.* (2005), Spinks (2012), Williams *et al.* (2011), Hunt *et al.* (2010), and Metcalfe *et al.* (2010).

Age: a statistically significant association between CAM use and age was found in four studies, with the middle-aged people as the largest user group: in females of 30-59 years who used both GP&CAM services in Steinsbekk *et al.* (2007), in people in the 35-39 age group who resorted to CAM practitioners in Spinks (2012), in people in the age range of 20-49 years in Williams *et al.* (2011), and in people aged 25-44 years in Metcalfe *et al.* (2010).

Education: CAM use increased with the higher levels of education in eight studies: in women resorting to homeopathy practitioners only in Løhre *et al.* (2012), in people seeing CAM practitioners in the US but not in Norway in Steinsbekk *et al.* (2009), in women being GP&CAM users in Steinsbekk *et al.* (2007), in people being ever-users of CAM in Hanssen *et al.* (2005), in women only in Spinks (2012), in people consulting CAM practitioners in Williams *et al.* (2011) and Metcalfe *et al.* (2010), as well as in the study of Hunt *et al.* (2010). However, CAM use might increase with education because people with higher levels of education also tend to have higher wages; thus, they can simply better afford to use CAM. In this case we mean that the association between CAM use and education could be confounded by income. But, nevertheless, the evidence for income as a predictor of CAM use is less consistent than that for education (Bishop, 2010).

Income: a positive association between increasing household income and the likelihood of seeing a CAM practitioner was discovered only in three studies, such as Williams *et al.* (2011), Metcalfe *et al.* (2010) and Spinks (2012), with a statistically significant relationship between higher income and increased probability of CAM use when the model was run without the employment variable in the latter study.

Chronic condition: it is generally suggested that people with some kinds of chronic conditions, which were not treated in a proper way by conventional health care practitioners, tend to use CAM more frequently, that was the case in seven studies: in females resorting to homeopathy practitioners only in Løhre *et al.* (2012), in females under 50 years in Steinsbekk *et al.* (2011), in females using both GP&CAM in Steinsbekk *et al.* (2007), especially in individuals having a mental chronic condition in Spinks (2012), in people with a chronic condition being almost twice as likely to use CAM than in those with no chronic diseases in Williams *et al.* (2011), in people with longstanding disease or illness in Hunt *et al.* (2010), in those with asthma or migraine being more likely to use CAM than in those with diabetes in Metcalfe *et al.* (2010).

Smoking status: disagreeing results for non-smoking and CAM use were identified in four studies: in female smokers having a decrease in the likelihood of visiting CAM practitioners in Løhre *et al.* (2012), in male daily smokers having reduced odds of seeing CAM practitioners in Steinsbekk *et al.* (2009), in non-smoking females having an increase in the odds of being GP&CAM users in Steinsbekk *et al.* (2007), and with smoking being a non-significant predictor of CAM use in Hunt *et al.* (2010).

Other health practitioners: it was found in two studies that seeing a CAM practitioner was strongly associated with seeing other health practitioners in both the USA and Norway in Steinsbekk *et al.* (2009), and in both Norway and Denmark in Hanssen *et al.* (2005), with ever-use of CAM in question in the latter study. There was no correlation between CAM use and more frequent GP use in Spinks (2012).

Self-reported global health: inconsistent evidence for CAM use and self-reported global health was established in five studies: in females with lower perceived global health having an increase in the likelihood of being GP&CAM users in Steinsbekk *et al.* (2007), in people with poor global health having increased odds of being ever-users of CAM in Hanssen *et al.* (2005), in people with "fair/poor" health being more likely to see CAM providers than in

those with "excellent/very good" in Williams *et al.* (2011), though, in females with fair global health having a decrease in odds of visiting CAM practitioners from 1997 to 2008 in Norway in Steinsbekk *et al.* (2011), and in those with better or worse self-reported health being strongly associated with seeing CAM practitioners in both the USA and Norway in Steinsbekk *et al.* (2009).

Bishop *et al.* (2010) concluded in their review of CAM user characteristics that an attempt to create a general profile of a CAM user across countries, rather than highlight and understand CAM user characteristics in specific populations, is after all somewhat useless: not only due to the general methodological differences between the studies, but also due to the fact that a number of variables might be confounded. Multivariate analyses can explain possible co-variation between factors and their relative importance; however, different combinations of variables included in various studies which, in addition, can be measured not in the same way, make it more difficult do any interpretations. Still, in general, the results from multivariate studies from different countries are important in examining trends in CAM use, as for instance the review of Bishop *et al.* (2010) has shown that both demographic and health characteristics contributed independently to CAM use, i.e. neither demographic nor health factors were more important predictors of CAM use.

2.6 Comparative CAM studies

There are only few studies to date that have explored how the prevalence of CAM use and user characteristics change over time in one specific population. In the following section I will present some of those studies, with a brief outline of methodologies used and results.

A comparative analysis (Su, 2011) of data from two nationally representative, cross-sectional surveys dated 2002 (N=30267) and 2007 (N=20769) in the USA showed that CAM use in the past 12 months (15 defined modalities, especially provider-based therapies, such as acupuncture, massage, chiropractic etc.) experienced a significant growth in the given time period: proportion of respondents with reported use of at least one CAM therapy (without prayer) increased from 25,7% in 2002 to 29,4% in 2007, adjusted for compositional changes. A hypothesis that the growth in CAM use in this period was uneven across racial and ethnic groups was confirmed by the following analysis: the percentage of CAM use in each year for each racial and ethnic group was estimated, and it was calculated further whether this percentage change over time was statistically significant based on the Pearson's chi-squared

test. Non-Hispanic Whites had the highest prevalence rate of using at least one CAM therapy in both 2002 (27,96%) and 2007 (33,1%), followed by Asian Americans (31,83% in 2007), African Americans (20,12% in 2007), and Hispanics (16,94% in 2007). Growth in CAM use from 2002 to 2007 was more salient among Non-Hispanic Whites and Asian Americans. The same analysis for both samples and for each CAM therapy was used to show that having unmet medical needs or delayed care due to cost was associated with increased CAM use. Gender was not taken into analysis, and that was regarded as the lack of the study.

According to the Irish study (Fox *et al.*, 2010) comparing data from two representative cross-sectional National Surveys of Lifestyles, Attitudes and Nutrition conducted in 1998 (N=6539) and repeated in 2002 (N=5992), the prevalence rate for visits to CAM practitioners (ever-use) by the Irish adults increased from 20% in 1998 to 27% 2002. The CAM practitioners most frequently visited were acupuncturists, reflexologists, homeopaths and chiropractors. Chi-squared test for independence of categorical variables was performed separately on the 1998 and 2002 data to explore the socio-demographic background and health status of those who did and did not use CAM. Where significant relationships were identified, those variables were then entered into multivariate logistic regression models employing the stepwise function (forward LR) of SPSS software. When identifying the characteristics of typical Irish CAM users, it was discovered that self-employed status, higher education and suffering from pain, depression were predictive of CAM use in both years; while affluent people were more likely to visit CAM practitioners in 1998 only, middle-aged - in 2002 only, and those suffering from anxiety - in 2002 only. Gender was not a significant predictor of CAM use in either of years. The use of lifetime prevalence in the analysis in contrast to one year prevalence might hamper comparison with many international surveys, and that was perceived as the limitation of the study.

An Israeli study (Shmueli *et al.*, 2011) comparing data from three surveys with identical questions revealed that CAM use in the Israeli urban Jewish population aged 45-75 years rose significantly between 1993 and 2007: in 1993, 6% of the population had at least one contact with a CAM practitioner during the previous year, as compared with 10% in 2000 and 12% in 2007. The aim of the study was also to estimate the net effects of a number of explanatory variables (age, gender, education, economic status etc.) on the use of CAM. A multivariate logistic analysis of the probability of using a CAM practitioner of any type was performed.

Women and highly educated persons were more likely to use CAM, and that tendency increased with the time; however, the odds ratio (OR) for "good/very good" economic status increased and changed from being insignificant (OR=0,892) in 1993 to significant (OR=1,369, i.e. with individuals reported this status being 37% more likely than less affluent people to use CAM) in 2000 and to insignificant (OR=1,579) again in 2007. Homeopathy, acupuncture and reflexology were discovered as the main types of CAM used. Lower back pain became the main problem for which care was sought. Different techniques of collecting the data (face-to-face surveys in 1993 (N=2003) and 2000 (N=2505), while a telephone survey in 2007 (N=752) which in addition was considerably smaller) and the fact that the population studied did not represent the entire Israeli population were assumed to be the main limitations of the study.

The results of the Norwegian study (Steinsbekk *et al.,* 2011) which investigated the changes in prevalence and characteristics of male and female visitors to CAM practitioners using the data from two cross-sectional adult population surveys from Central Norway, the Nord-Trøndelag Health Studies (HUNT), dated 1997 (N=42277) and 2008 (N=50713) were as follows: in total the prevalence rate for visits to CAM practitioners in the last 12 months increased from 9,4% in 1997 to 12,6% in 2008, with the prevalence of CAM use in females almost twice as high as that in males in both years. A test of difference between the results of multivariable logistic regression models for each year including all variables with Ratio Odds Ratios (ROR) was used to analyze changes from 1997 to 2008. For males there was an increase in odds of visiting CAM practitioners in this time period for those under 50 years, who had a recent complaint, were widower or did hard physical activities; a decrease in the odds was for those who had a university degree and psychiatric complaint. For females there was an increase in the odds for those under 50 years, who had a recent complaint or chronic complaint; those females with reported fair global health and psychiatric complaint had a decrease in odds of visiting. The study design allowed investigators to do both separate analyses for males and females and examination of a comprehensive set of explanatory variables, and that was perceived as the main strength of the study.

CHAPTER 3: METHODOLOGY

3.1 Data

Data used in the master thesis was provided by SSB; it is based on two large population surveys - SSB-2002 and SSB-2012.

The main purpose of SSB Level of living – cross sectional study is to cover all important issues concerning the level of living in Norway during the time. A new system for cross-sectional surveys of level of living with rotating topics was introduced by SSB in 1996, with the main subjects studied grouped as follows: Working conditions (performed in 1996, 2000, 2003, 2006, and 2009), Living conditions, community and leisure (in 1997, 2001, 2004, and 2007), and Health (in 1998, 2002, 2005, 2008, and 2012). Repeating the surveys every third year gives an opportunity to explore eventual changes and discern particular trends in people's living conditions during the time.

Both Health surveys, SSB-2002 and SSB-2012, were designed to study health, care, and social contact. The focus was mainly on defining the general health status of the Norwegian population and discerning the patterns of health care service usage. SSB-2012 illustrated, in addition, provision of unpaid care to the elderly, sick and disabled, as well as political participation, economic and social problems. SSB survey on living conditions is the basis for the official statistics on health status of the Norwegian population.

Key data characteristics for both surveys:

The collection of SSB-2002 data started in 2002.10.01 and ended in 2003.02.21; respectively for SSB-2012: 2012.08.20 – 2013.02.01. Geographic coverage concerned the whole country of Norway. Individuals were thought of as the unit of analysis; those aged 16 years old and over residing in the private households were included in the study, while permanent residents of institutions (homes for the elderly, nursing homes, psychiatric hospitals/nursing homes, institutions for the mentally retarded/alcoholics/drug addicts) were excluded.

The sampling procedure

SSB-2002: The main sample of 5000 individuals aged 16 years and over residing in the private households was drawn from BEBAS[3] database for face-to face interviews, and the SSB standard two-step sample frame was used that divided the country into a number of

[3] BEBAS - SSB database of demography/population

primary sampling areas (municipalities) at first, which, in turn, were divided into 109 subpopulations (strata). If a municipality had few inhabitants then it was grouped together with another one to ensure that each sampling area consisted of at least 7% of the total number of inhabitants in the stratum the municipality belonged to. One primary sampling area from each stratum was selected in the first stage, while in the second stage the respondents were randomly drawn from a population register (with a probability designed in such a way that all persons in the sampling frame would have the same probability of selection). The supplementary sample of 5.000 persons aged 16 years and over residing in the private households was drawn for telephone interviews, and the SSB sampling frame was thus not employed. This sample was drawn systematically random from all municipalities in the country (nsd, 2002).

SSB-2012: A sample of 10000 individuals aged 16 years and over residing in the private households was drawn from SSB database of demography/population register BEREG[4]. It was drawn as a nationwide, representative sample in one step from all municipalities; 14085 individuals of all ages and from all over the country were first selected for a "rough" sample, all persons under 16 years old were identified then and a sample of 10000 people with a representative distribution by gender, age group and region was drawn (Amdam, 2014).

The key sample figures are presented in Table 3.1 and 3.2. Out of 10000 people chosen to participate in the interview part of the SSB-2002 survey, a gross sample of 9698 persons (302 persons were not eligible) was selected, 2871 of which did not respond; a net sample of 6827 individuals, thus, with a response rate of 70,4% was identified. For SSB-2012, a gross sample of 9771 persons (229 non-eligibles) out of 10000 individuals was selected, with non-response of 4111 ones; a net sample of 5660 persons, consequently, with a response rate of 57,9% was set.

Data collection in both surveys was performed through a combination of phone or face-to-face interviews, and self-completion questionnaire aimed at eliciting answers to sensitive questions, such as mental health and alcohol consumption. In SSB-2002, the main sample plus the supplementary one received the postal form, while the fill out form was sent only to the net sample (persons who underwent the interview part) in SSB-2012.

[4] BEREG – SSB database of demography/population. It is updated daily with information from the National Registry

Table 3.1: *Key sample figures. SSB-2002*

	Total persons	Percen-tage, %	Percen-tage, %
Main sample (face-to-face interview)	**5000**	**100**	
Total retires **(**died, living min. 6 months abroad, living in institutions)	161		3,22
Gross sample:	**4839**	**48,39**	**100**
No response	1442	14,42	29,8
Net sample	**3397**	**33,97**	**70,2**
Supplementary sample (phone interview)	**5000**	**100**	
Total retires	141		2,82
Gross sample:	**4859**	**48,59**	**100**
No response	1429	14,29	29,4
Net sample	**3430**	**34,30**	**70,6**
Interview (total): face-to-face+phone	**10000**	**100**	
Total retires	302		0,3
Gross sample:	**9698**	**96,98**	**100**
No response	2871	28,71	29,6
Net sample	**6827**	**68,27**	**70,4**
Questionnaire	**10000**	**100**	
Total retires	325[1]		3,25
Gross sample:	**9675**	**96,75**	**100**
No response	3482	34,82	36
Net sample	**6193**	**61,93**	**64**
Net sample, answered both questionnaire and interview	**5396**	**53,96**	**55,8**

[1]23 new retires after interviews were performed

Source: *SSB documentation report on "Level of living 2002 – Cross sectional study – Health"* (Hougen, 2004)

Table 3.2: *Key sample figures. SSB-2012*

	Total persons	Percen-tage, %	Percen-tage, %
Total	**10 000**	**100**	
Total retires:	**229**	**2,29**	**100**
Respondents, died	40	0,40	17,5
Respondents, living min. 6 months abroad	118	1,18	51,5
Respondents, living in the health institutions	71	0,71	31
Gross sample:	**9771**	**97,71**	**100**
No response, interview	4111	41,11	42,1
Net sample, interview	**5660**	**56,60**	**57,9**
Gross sample:	**5660**	**56,60**	**100**
No response, fill out form	1627	16,27	28,8
Net sample, fill out form	**4033**	**40,33**	**71,2**
Proportion, answered by post	2842	28,42	50,2
Proportion, answered via web	1191	11,91	21

Source: *SSB documentation report on* "Survey on living conditions, health, care and social contact 2012" (Amdam, 2014)

For SSB-2002, face-to-face interviews constituted 43% of the total number of interviews in the main sample and were performed mostly with the persons over 80 years; the supplementary sample was initially made as a phone survey, that is why face-to-face interviews were employed only exceptionally (1,1% of the whole sample). For SSB-2012, face-to-face interviews constituted 0,2% of the gross sample and were performed in special occasions (Hougen, 2004 and Amdam, 2014).

In order to make interview times shorter (not ask some background questions directly) and enhance the data quality as well, record linkages were performed in both surveys. In SSB-2002, the personal information about education, income, social insurance, benefits, employment etc. was obtained from the registers which SSB had access to: the Directorate of labor *(AETAT)*, Social Security Administration *(Rikstrygdeverket)*, the National registry (*Det sentrale folkeregisteret)*, and SSB register-based statistics on education, taxes and income. In SSB-2012, information about households from the National registry, education from schools,

counties and the State educational loan fund (*Lånekassen*), information about income from the Norwegian tax administration (*Skatteetaten*), and employment, social insurance, benefits, GPs from the Norwegian labor and welfare organization (*NAV*) was gathered. All names and addresses were to be deleted within two years after the end of the data collection and personal numbers replaced with codes. All the personal information was to be kept confidentially (Hougen, 2004 and Amdam, 2014).

The data quality and sample deviations:

When it comes to collection and processing errors, the data quality of both surveys was claimed to be high. Computer assisted interviewing (CAI), with the system of warnings and answer checks incorporated in the program, aimed at reducing the danger of possible errors made by an interviewer (e.g. he/she asks wrong questions to wrong persons) was used. However, the danger for data collection errors of other types when a participant submitted a wrong answer still remains: he/she misunderstood the question, or answered in a way that was socially appropriate (e.g. questions about contacts with parents, physical activity), or it was difficult to recollect things which were long in the past (e.g. use of health care services, expenses past 12 months), or some questions were of a sensitive type (e.g. use of psychiatric services, reporting of some diseases; as a consequence, answers to this kind of questions might be underreported). Processing errors might for instance occur during recoding, and then the initially registered value would differ from the reported value. However, when corrected, where it is possible, those collection and processing errors should generally have little impact on statistical results (Hougen, 2004 and Amdam, 2014).

The sample deviations for both surveys were relatively modest. "No response" can generally lead to the selection bias when distribution of the specific criteria (e.g. gender, age group, region, level of education) differs in the net sample (people who were actually interviewed) and the gross sample (people who were chosen to be interviewed), i.e. those who were interviewed (the net sample) are not representative for the whole population (presented by the gross sample here). In SSB-2012, there were almost no differences in distribution between men and women in the net sample, though, men's participation was a bit lower. Those in the 25-44 age group and over 80 years old, persons with low educational level and those living in "Northern Norway" were a bit underrepresented. However, people with high university degree and living in "Oslo and Akershus" were slightly overrepresented (Amdam, 2014). In

SSB-2002, people living in "Eastern Norway or else" and "Akershus and Oslo", and persons over 80 years old were slightly underrepresented in the net sample. Those residing in "Agder and Rogaland" were slightly overrepresented. There were no substantial deviations in terms of gender. If the dependent variable (subject of the study) is especially strongly related to characteristics which are unevenly distributed in the dataset, weighting of the data material can be considered then. However, the deviations would be too small for it to matter in most cases (Hougen, 2004). No clear information about weighting procedures was provided in either of surveys.

3.2 Variables used in the analysis

a. Dependent variable

Dependent variable was labeled as a "CAM visitor", i.e. a person who answered "yes" to the question which was given and identically formulated in both SSB surveys: "During the last 12 months, have you visited any type of CAM practitioner?". In SSB-2012, in addition, it was asked about 8 CAM modalities ("During the last 12 months, have you visited: homeopath, acupuncturist, reflexologist (foot zone therapist), aroma therapist, massage therapist, naprapath, osteopath, or healer?"), and separately about seeing another CAM practitioner. The question about visiting chiropractors was not included in CAM visits, since they are authorized health personnel in Norway.

b. Independent variables

The choice of a set of independent variables was accomplished in a following way: first, all variables were divided into the five topic groups (Demographics, Lifestyle, Health status, Health care use, and Social contact). The variables which were highly cited in the research to date (Sirois, 2002), as well as new ones perceived as interesting by the author of the thesis (especially those in the Social contact) were chosen for each topic group. As missing data can reduce the representativeness of the sample and, consequently, distort inferences about the population, only variables with no more than 1000 missing values were chosen thereafter for the first rough list of variables. The cut-off of 1000 missing led in practice to that no variables with more than about 200 missing values were included in the analysis; this ensured, consequently, the data quality of the analysis presented further. A series of bivariate analyses was performed separately for datasets from 2002 and 2012, where variables with p-value less than 10% (p<0,10) were chosen to the final set of independent factors. The significance level

was set to 10% to avoid excluding variables which showed p-values close to the more common 5% level from the multivariate analyses. There were selected 36 variables for the 2012 final dataset and 26 for 2002, see Appendix I. Some of the variables either existed in 2002 or 2012, i.e. did not have the corresponding variables in the other dataset. This is simply because the question was asked only in one of the surveys, but not in both. For the final multivariate comparison analysis (II) only variables given in both years were chosen, 21 ones in total. To avoid possible non-linear relationships on the log-scale between CAM use and the independent variables in the logistic regression analyses (see below), all independent variables were categorized.

Demographics: variables on gender, age group, civil status, level of education, field of study, primary occupation, region, total household income before tax (in 2002 only) and weight were included. Income and weight variables were categorized. Education was recoded from 10 levels to 3: "high school graduate or less" including the first six original levels, "college/bachelors" – the 5^{th} and 6^{th} levels, "masters, doctorate" – the 7^{th} and 8^{th} levels, unknown educational level (the 9^{th} level) was treated as missing. Primary occupation in 2012 was recoded from 11 categories to 7 in a following way: the first four were merged and defined as "in work", the category "other inactive person" was treated as missing, "disabled or unable to work" was assumed to correspond to "socially insured" in 2002. Special attention should be paid to the categories "unemployed" and "disabled" in 2002 which both had 0% for CAM use (see Appendix II, Table 1). It is quite unlikely to obtain such estimates from a large population survey; hence the question of either a collection/processing error or inadequate sampling strategy might arise in this context. However, it is impossible to figure out here whether it was due to this or other reasons. In the following analysis we use the data as they are.

Lifestyle: variables on smoking status ("Do you sometimes smoke?", "yes/no") and physical activity during the last year ("never/less often than once a week/once a week or more") were presented in both years. Three questions about diet (regularity of eating fish, vegetables and fruit) were asked in 2012 only.

Health status: in both years, self-reported general health status was elicited by choosing one of the five presented response alternatives ("very good/good/neither good nor poor/poor/very poor"), and presence/absence of a chronic condition by answering "yes/no". Complaints in the

last three months (pain in body, headache, depression, sleeping problems, and weakness) were revealed in 2012 only by answering "yes/no". Subjects were asked about presence of particular diseases in 2002 only: "acute myocardial infarction", "angina pectoris", and "stroke" were combined and labeled as "cardiovascular diseases", answer options were changed to "have/have had" or "have never had" (also with "asthma" and "allergy") as a more common way of presentation found in other research. The variable "number of diseases registered" from 2002 only was categorized.

Health care use: utilization of health care services in the last year was established by answering "yes" to having visited one or more of those: a specialist outside hospital, a specialist at hospital, a psychologist, a psychiatrist, a physiotherapist and/or a chiropractor. The variable on number of contacts with a GP was categorized. In addition, two questions showing a respondent's attitude to a GP's work were asked in 2012 only ("GP takes me and my problems seriously", "GP does not give me enough time"), with five response categories: "totally agree/somewhat agree/neither agree nor disagree/somewhat disagree/totally disagree".

Social contact: whether a respondent had someone who he/she could talk to confidentially was determined by answering "yes". The frequency of meeting with friends was identified by selecting one of the five response options: "almost daily/about every week, but not daily/about every month, but not every week/a few times a year, but not every month/less often than every year". The interest other people showed in what a respondent did was measured as "big/some/little/none/uncertain", the response category "uncertain" in 2002 was assumed to correspond to "neither big nor small" in 2012. Only in 2012, there were asked three questions about interaction with other people (doing sports, cultivating hobbies, and participating in cultural activities) and two questions about whether a respondent felt discriminated, with answer alternatives "yes/no".

3.3 Statistical analyses

The data analysis involved: descriptive statistics, binary logistic regression models (identification of the factors associated with CAM use in Norway), and comparative analysis (exploring the changes of characteristics of a typical Norwegian CAM user over time – from

2002 to 2012). All data was analyzed using SPSS statistics version 21 and Microsoft Excel 2010.

Preliminary analyses:

Descriptive statistics were used to present the socio-demographic characteristics of the whole sample in 2002 and 2012, respectively, by performing cross tabulations which gave an insight into age, gender, region etc. distributions among those who had appointments with a CAM practitioner and those who did not. Some key characteristic distributions of CAM use at two time points were presented visually by figures performed in Microsoft Excel 2010.

Bivariate analysis:

The data had a design suitable for the use of Pearson's chi-square test for independence, which is employed to discover if there is a relationship between two categorical variables. We have two independent groups of individuals (with and without a characteristic), and would like to know whether the proportions with a characteristic are the same in those groups. The null hypothesis - H_0: the proportions of individuals with characteristics are equal in the two groups in the population - can be rejected at a chosen significance level of 10% (Riffenburgh, 2006 and Petrie, 2009). A series of Chi-squared tests was used to explore the relationships between a dependent variable with each of the independent variables. The main output information extracted for a further discussion was as follows: the overall p-value, sample composition by a characteristic under study (N), and percentage of those having seen a CAM practitioner by category.

Binary logistic regression models (see also a theoretical description below) were run on each of the independent variables (i.e. one at a time), with ORs, 95% confidence intervals and p-values for each category of the variable (except for the reference) taken out to determine whether the variable was predictive of CAM use.

To compare the results from two time points, a two-sample Z-test for the difference between two population proportions p_1 and p_2 was performed. The null hypothesis - H_0: there is no difference between two population proportions, i.e. $p_1 = p_2$, - which constitutes a two-tailed test, can be rejected if the proportion from the first population is too big or if it is too small at a chosen significance level of 5% (Riffenburgh, 2006). Z Test online calculator (Z test, 2014) was employed in order to calculate p-values for each category of each variable given both in 2002 and 2012.

Main analysis:

Separate analysis of data from 2002 and 2012:

Binary or binomial logistic regression is a form of regression which is used when the dependent variable is a dichotomy and the independents are of any type (Garson, 2011). Since the dependent variable in our analysis represents a binary outcome (1 – "yes" and 0 – "no" to the question "During the last 12 months, have you visited any type of CAM practitioner?"), the use of binary logistic regression models was assumed to be reasonable in: determining which explanatory variables influence the outcome (one at a time, bivariate analysis as mentioned above), and predicting a binary dependent variable on the basis of a particular covariate pattern while explaining the prediction in terms of ORs (multivariate analysis).

Logistic regression measures the odds of a certain event to occur by applying the maximum likelihood estimation after transforming the dependent into a logit variable (taking the natural logarithm of the odds of the dependent equaling a certain value or not, usually 1). Logistic regression equation is of a following form:

$Logit\ (p) = b_0 + b_1X_1 + b_2X_2 + ... + b_kX_k,$ where

x_i is the ith explanatory variable (i=1,2,3,…,k);

b_0 is the constant term, and $b_1, b_2,\ldots,b_k$ are the estimated logistic regression coefficients;

p is the estimated value of the true probability that an individual with a particular set of values for $X_{1, \ldots,} X_k$ has the outcome of interest (used CAM); it has an underlying Binomial distribution (Petrie, 2009).

Exp(b) is the OR for an independent variable, i.e. the natural logarithm base *e* raised to the power of *b*. OR is the effect size measure, the factor by which the independent increases or (if negative) decreases the log odds of the dependent (*logit* (*p*)). An OR of 1, *Exp(b*)=1, i.e. when *b*=0, corresponds to no effect. *Exp(b)*>1 means that the independent variable increases the logit and therefore increases the odds(event), *Exp(b)*<1 then the independent variable decreases the logit and decreases the odds (event), Garson (2011).

Multivariate logistic regression models (I): all significant variables at a 10% level (p<0,10) from the bivariate analysis were included to estimate the net effects of the explanatory variables on the use of CAM for each year separately. Adjusted odds ratios (AdjOR) with 95% confidence intervals and corresponding p-values were taken into account when

determining whether and how strong the variables were predictive of CAM use. The AdjOR gives the effect of each variable when comparing to individuals having the same values of the other independent variables included in the model.

Multivariate logistic regression models (II) with identical sets of variables in both years, i.e. 21 ones for each year, were performed. This means that some insignificant variables at a 10% level ($p<0,10$) from the bivariate analysis were nevertheless included in order to be able to make further comparison of inferences from the two time points. In the multivariate analyses, I and II, the standard 5% significance level ($p<0,05$) and 95% confidence intervals for AdjORs were employed.

Thus, multivariate logistic regression models (I) were executed to identify which socio-demographic and/or health factors were predictive of CAM use irrespective of existence/nonexistence of the independent variables in both years, while multivariate logistic regression models (II) were carried out as preliminary analysis for ROR estimation explained further.

Comparative analysis of data from 2002 and 2012:

A test of interaction - when comparing two estimates of the same quantity derived from two separate analyses, with the help of *ROR* here *(Ratio Odds Ratio* – ration from a comparison of two ORs) - was performed on the results of the multivariate logistic regression models (II) with identical sets of variables in both years. If the estimates are E_1 and E_2 with standard errors $SE(E_1)$ and $SE(E_2)$, then the difference $d=E_1-E_2$ has standard error $SE(d)=\sqrt{[SE(E_1)^2+SE(E_2)^2]}$, i.e. the square root of the sum of the squares of the separate standard errors. Then the ratio $z=d/SE(d)$ gives a test of the null hypothesis that in the population the difference d is zero, by comparing the value of z to the standard normal distribution, the 95% confidence interval for the difference is $d-1,96SE(d)$ to $d+1,96SE(d)$. ORs are analyzed on the log scale, since the distributions of the log ratios tend to be closer to normal than of the ratios themselves (Altman, 2003).

The RORs with 95% confidence intervals and corresponding p-values for each category of all variables were calculated using Excel and following Altman's (Altman, 2003) 12 step-procedures comparing two ORs derived from two separate analyses. Statistical significance was accepted at a 5% level ($p<0,05$). An example of complex ROR calculations is presented

in Table 3.3. A ROR>1 indicates higher odds of visiting a CAM practitioner in 2012 than in 2002.

***Table 3.3**: Example of calculations for comparing two odds ratios. Altman (2003)*

		SSB-2012	**SSB-2002**
1	OR	1,77	2,14
2	*log OR	0,571 *(E_1)*	0,761*(E_2)*
3	95% CI for OR	1,32 to 2,37	1,64 to 2,78
4	*95% CI for log OR	0,278 to 0,863	0,494 to 1,022
5	Width of CI	0,585	0,528
6	SE[=width/(2x1,96)]	0,585/(2x1,96)=0,149	0,135
Difference between log ORs			
7	$d = E_1 - E_2$	0,571-0,761=-0,19	
8	SE(*d*)	$\sqrt{(0,149)^2 + (0,135)^2} = 0,201$	
9	CI(*d*)	-0,19±1,96x0,201 or -0,584 to 0,204	
10	**Test of interaction**	*z* =-0,19/0,201=0,945, (**P=0,345**)	
Ratio of ORs (ROR)			
11	ROR=exp(*d*)	Exp(-0,19)=**0,827**	
12	CI (ROR)	Exp(-0,584) to exp(0,204) or **0,558** to **1,226**	

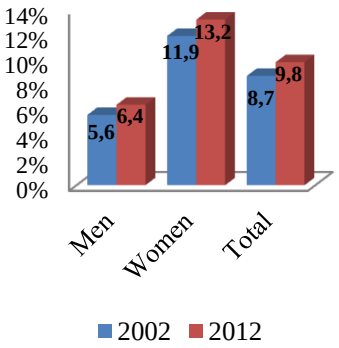
*natural logarithms of values on preceding row

CHAPTER 4: RESULTS

4.1 Descriptive statistics for a CAM visitor

In 2002, in total 8,7% (n=596) of 6827 individuals (95% CI: 8,0% – 9,0%) visited some type of CAM practitioner during the previous year, and this increased significantly (p=0,007) to 9,8% (n=556) of 5657 respondents (95% CI: 9,0%-11,0%) in 2012.

Figure 4.1: *Prevalence of CAM use last 12 months by gender. 2002, 2012*



Nearly twice as many females visited a CAM practitioner both in 2002 and 2012 compared to males (11,9% females, 5,6% males of the population in 2002; 13,2% females and 6,4% males of the population in 2012), see Figure 4.1.

In total, there was a rise in proportion of those resorting to services provided by CAM practitioners in 2012 compared to 2002 in all age groups, except for the age group 16-24 years, see Figure 4.2. The biggest rise in use by 2,8% occurred in the age group 25-44 years. However, with regard to gender distribution, the biggest growth in CAM consumption was observed in females aged 67-79 years (4,9%) and in males aged 25-44 years (3,2%).

The highest prevalence rate in 2012 constituted 16,4% and was discerned in females in the age group 25-44 years; while in 2002, older women of 45-66 years were the most frequent CAM users (14,6%).

Figure 4.2: *Prevalence of CAM use last 12 months by age group and gender. 2002, 2012*

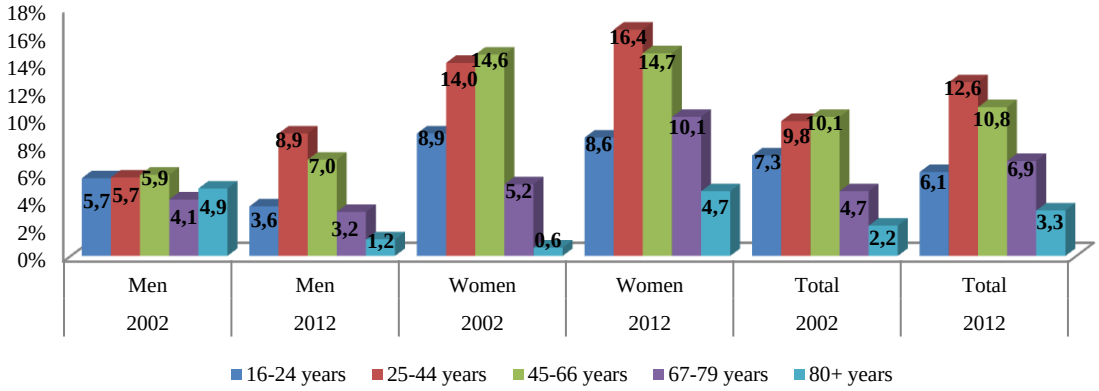


Figure 4.3 displays the percentage distribution of CAM use among population by type of practice. Data was available only for 2012. The most widely used CAM practices were:

Figure 4.3: *CAM use last 12 months among population by type of practice. 2012. Percentage.*

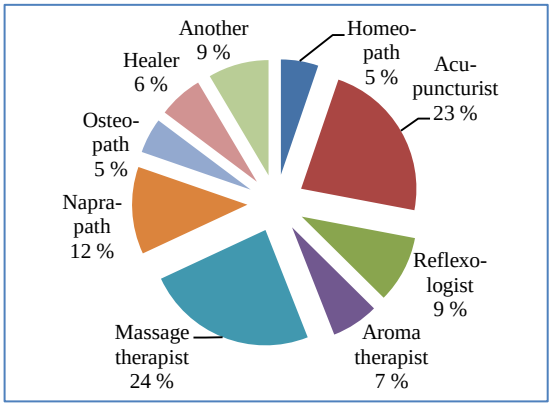


Figure 4.4: *Share of men and women who visited different types of CAM practitioners. 2012. Percentage*

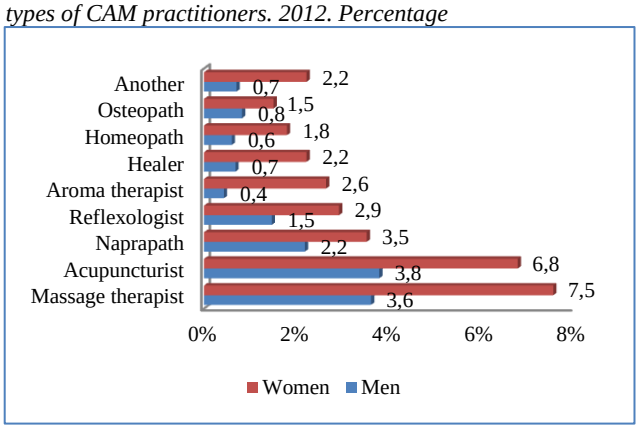


Table 4.1: *Respondent characteristics by CAM use. 2002, 2012. Percentage*

	SSB-2002		SSB-2012	
	Did not use CAM	**Used CAM**	**Did not use CAM**	**Used CAM**
All	100	100	100	100
Gender				
Women	48,3	68,0	48,6	67,6
Men	51,7	32,0	51,4	32,4
Age group				
16-24	13,5	11,1	14,5	8,6
25-44	36,6	41,8	28,9	38,1
45-66	34,3	40,3	38,1	42,1
67-79	11,4	5,9	14,6	9,9
80+	4,2	1,0	4,0	1,3
Civil status				
Single	34,6	30,9	37,9	35,1
Married	50,7	54,0	50,0	49,1
Widow/widower	6,5	3,0	5,3	4,9
Separated	1,2	1,3	1,0	1,4
Divorced	7,1	10,7	5,8	9,5
Education				
High school graduate/ less	71,0	71,2	63,0	54,9
College/bachelors	23,4	24,4	27,6	35,8
Masters, doctorate	5,6	4,4	9,5	9,3
Primary occupation				
In work	67,2	75,2	61,4	66,7
Student	6,5	4,9	11,4	9,4
Conscript	0,3	0,2	0,1	0,0
Unemployed			1,8	1,8
Disabled			5,1	9,4
Working at home	11,4	13,3	0,6	0,7
Age pensioner	14,5	6,5	19,7	11,9
Weight, kg				
<=55	7,4	9,4	7,2	5,6
56-65	21,2	27,5	19,8	28,9
66-75	26,3	26,0	26,2	25,2
76-85	23,2	20,0	23,1	20,1
86+	21,9	17,1	23,7	20,1
Smoking				
No	61,8	65,3	75,1	75,5
Exercise last year				
Never	25,8	19,1	10,4	7,7
Less often than once a week	11,0	10,1	9,3	8,6
Once a week or more	63,1	70,8	80,3	83,6
N interviewed	6231	596	5101	556

Table 4.2: *Health-related characteristics and use of conventional medicine by CAM Use. 2002, 2012. Percentage*

	SSB-2002		SSB-2012	
	Did not use CAM	**Used CAM**	**Did not use CAM**	**Used CAM**
All	100	100	100	100
Health in general				
Very good	34,6	24,8	30,3	26,1
Good	47,2	48,0	48,0	45,6
Neither good nor poor	12,6	16,8	14,3	16,8
Poor	4,7	8,7	6,2	9,0
Very poor	0,9	1,7	1,2	2,5
Chronic condition				
Yes	36,5	48,3	41,3	50,4
Last year: GP				
0	26,4	16,8	18,4	11,0
1	23,1	17,5	23,3	16,1
2	15,8	16,1	18,9	18,5
3	9,3	10,5	11,1	14,0
4+	25,4	39,1	28,3	40,4
Specialist at hospital				
Yes	21,5	30,9	28,7	36,0
Specialist outside				
Yes	16,2	26,0	22,8	34,7
Psychologist				
Yes	3,0	5,0	3,8	6,3
Physiotherapist				
Yes	13,5	29,0	17,3	28,2
Chiropractor				
Yes	6,1	16,9	8,7	16,5
Number of persons interviewed	6231	596	5101	556

massage (24%), followed by acupuncture (23%), and naprapathy (12%). Nearly twice as many females compared to males visited each type of CAM practitioner in 2012, see Figure 4.4. A summary of the sample characteristics both for 2002 and 2012 is presented in Table 4.1 and 4.2.

4.2 The bivariate analysis

Interpretation of the results of logistic regression in the form of ORs can be seen on the following example (see SSB-2012 in Table 1, Appendix II): an independent variable on education with 3 levels (1=high school graduate/less, 2=college/bachelors, 3=masters, doctorate) has the reference category of 1 (high school graduate/less). The OR for the first category of level of education (i.e. college/bachelors) in this example is 1,49, we would say hence that the odds of using CAM compared to not using CAM are increased by a factor of 1,49 when the respondent has college/bachelor degree level of education compared to high school graduate or less; similar interpretation is for the second category (masters, doctorate), Garson (2011).

The results of the bivariate analysis presented in Table 1 Appendix II showed that at both time points individuals most likely to visit CAM practitioners were as follows: females, divorced, studied Humanities and Arts, exercised once a week or more in the last 12 months, with some chronic health condition and poorer self-reported health status. These individuals also tended to visit conventional health care practitioners in the last year (GPs two or more times, specialists both outside and at hospital, psychologists, physiotherapists and chiropractors). Those living in Northern Norway had decreased odds of seeing a CAM practitioner in both years.

The variables most strongly associated with visits to a CAM practitioner (i.e. a category with the highest OR) in 2002 were being 45-66 years, working at home, having total household income before tax of NOK 570000 and over, not smoking, having/having had asthma, allergy, cardiovascular disease, and 3-4 diseases in total, with close friends and receiving a big interest from others in what he/she does. While the significant predictors of CAM use in 2012 were being 25-44 years old, disabled, with college/bachelor degree level of education, having weight between 56-65 kg, eating vegetables two times a day, fish 5-6 times a week, fruit and berries 3 or more times a day, having had health complaints in the last 3 months (headache,

pain in body, sleeping problems, weakness, and depression), meeting with friends every month, but not every week, and participating in social activities (sport, mutual hobbies, cultural activities). Interestingly enough, these individuals also tended to feel discriminated in general and because of their health status in the last 12 months in particular; as well as they totally/somewhat agreed with the assertion that they were neither given enough time at a GP's consultation, nor treated seriously.

The results of the test of proportions (Table 1 Appendix II) employed to discern the changes in proportions of CAM visitors for all variables at two time points showed that quite a few variables underwent a statistically significant change in this period. In 2012, compared to 2002, there was a significant increase (p=0,007) in the overall prevalence of CAM use by 1,4%. Other most striking changes were an increase in the age group 25-44 years (by 2,8%, p=0,004) and among those with "very good" self-perceived health status (by 2,2%, p=0,008).

4.3 The multivariate analysis

Separate analyses for 2002 and 2012

The results of the multivariate logistic regression (I) given in Table 4.3 showed that the odds for a person to be a CAM visitor increased significantly at a 5% level (p<0,05) both in 2002 and 2012 if the individual was a female (AdjOR 2,14 in 2002; AdjOR 1,77 in 2012) and had visited a chiropractor during the last year (AdjOR 2,57 in 2002; AdjOR 1,46 in 2012).

Table 4.3: *Multivariate analysis (I) of visits to CAM practitioners in Norway in 2002 and 2012*

	SSB-2002			SSB-2012		
	AdjOR[1]	95 % CI	P value	Adj OR[1]	95 % CI	P value[1]
DEMOGRAPHICS:						
Gender						
Male	Ref			Ref		
Female	2,14	1,64-2,78	**0,000**	1,77	1,32-2,37	**0,000**
Age (years)						
16-24	Ref		0,234[3]	Ref		**0,002**[3]
25-44	1,13	0,79-1,63	0,505	2,14	1,24-3,69	**0,006**
45-66	1,03	0,69-1,56	0,873	1,52	0,85-2,73	0,156
67-79	0,22	0,03-1,66	0,141	1,19	0,53-2,69	0,672
80+	0,09	0,01-0,95	**0,045**	0,48	0,13-1,76	0,269
Civil Status						
Single	Ref		0,100[3]	Ref		0,143[3]
Married/registered partner	1,10	0,84-1,43	0,503	0,99	0,76-1,29	0,949
Widow/widower/survivor	0,79	0,42-1,49	0,470	1,19	0,67-2,14	0,550
Separated	0,86	0,33-2,24	0,755	0,88	0,30-2,59	0,811
Divorced	1,57	1,08-2,28	**0,019**	1,61	1,06-2,43	**0,024**
Education	not included (p > 0,10)					
High school graduate/less				Ref		0,985[3]
College/bachelors				1,02	0,76-1,36	0,898
Masters, doctorate				1,03	0,69-1,56	0,872
Field of study						

General programmes	Ref		**0,013**[3]	Ref		0,641[3]
Humanities and Arts	1,19	0,80-1,77	0,383	1,21	0,74-1,96	0,449
Education	1,07	0,73-1,57	0,730	1,11	0,68-1,82	0,675
Social sciences and Law	0,80	0,40-1,61	0,539	0,94	0,50-1,77	0,842
Business & administration	1,14	0,85-1,54	0,384	1,35	0,94-1,93	0,099
Natural sciences, vocational and technical subjects	1,36	1,01-1,84	**0,045**	0,94	0,65-1,36	0,752
Health, welfare and sport	0,74	0,53-1,02	0,069	0,94	0,65-1,36	0,740
Primary industries	0,85	0,41-1,76	0,656	1,04	0,43-2,55	0,927
Transport, communications, safety and security	1,85	1,19-2,89	**0,006**	0,93	0,47-1,82	0,827
Primary occupation						
In work	0,49	0,06-3,79	0,499	1,24	0,71-2,17	0,456
Student	0,39	0,05-3,13	0,374	1,48	0,71-3,10	0,300
Conscript	0,55	0,03-9,99	0,688	0,00[4]	0,00- .	0,999
Unemployed				1,31	0,48-3,58	0,598
Disabled				1,36	0,70-2,65	0,359
Working at home	0,38	0,05-2,99	0,361	1,23	1,32-4,73	0,762
Age pensioner	Ref		0,427[3]	Ref		0,971[3]
Total household income before tax				Not given		
≤ 270000	Ref		**0,021**[3]			
270001 - 420000	0,74	0,53-1,03	0,075			
420001 - 570000	0,68	0,48-0,96	**0,028**			
570001 - 720000	1,01	0,71-1,43	0,969			
720001+	0,96	0,68-1,36	0,819			
Region						
Akershus and Oslo	Ref		0,164[3]	Ref		0,123[3]
Hedmark and Oppland	0,99	0,67-1,45	0,949	1,44	0,96-2,14	0,076
Eastern Norway or else	1,18	0,89-1,56	0,251	1,40	1,03-1,90	**0,029**
Agder and Rogaland	0,82	0,59-1,13	0,220	1,11	0,78-1,58	0,547
Western Norway	0,85	0,62-1,16	0,304	0,90	0,64-1,27	0,537
Trøndelag	0,94	0,65-1,34	0,726	1,04	0,68-1,60	0,852
Northern Norway	0,75	0,52-1,10	0,141	1,07	0,70-1,63	0,760
Weight, kg						
<= 55	Ref		0,609[3]	Ref		**0,012**[3]
56 - 65	0,94	0,66-1,34	0,746	2,13	1,29-3,52	**0,003**
66 - 75	0,81	0,57-1,17	0,266	1,45	0,87-2,43	0,152
76 - 85	0,80	0,54-1,19	0,273	1,67	0,98-2,85	0,061
86+	0,77	0,51-1,16	0,213	1,82	1,04-3,16	**0,035**
LIFESTYLE:						
Do you sometimes smoke?				not included, (p > 0,10)		
Yes	Ref					
No	1,29	1,05-1,57	**0,013**			
Exercise past 12 months				not included, (p > 0,10)		
Never	Ref		**0,005**[3]			
Less often than once a week	1,26	0,88-1,81	0,205			
Once a week or more	1,51	1,17-1,95	**0,001**			
Eating vegetables	Not given					
3 or more times a day				1,19	0,51-2,76	0,682
2 times a day				1,54	0,73-3,28	0,258
Once a day				1,23	0,61-2,52	0,561
5-6 times a week				0,86	0,40-1,84	0,691
2-4 times a week				0,94	0,45-1,96	0,871
Once a week or less				Ref		0,087[3]
Eating fish	Not given					
Once a day				1,17	0,42-3,24	0,758
5-6 times a week				2,41	1,24-4,69	**0,009**
2-4 times a week				1,00	0,68-1,48	0,985
Once a week				1,06	0,71-1,59	0,760
Less than once a week				Ref		0,051[3]
Eating fruit and berries	Not given					
3 or more times a day				0,96	0,60-1,55	0,878
2 times a day				0,66	0,43-1,02	0,062
Once a day				0,95	0,63-1,42	0,793
5-6 times a week				1,10	0,67-1,82	0,693
2-4 times a week				0,85	0,55-1,32	0,481
Once a week or less				Ref		0,100[3]
HEALTH STATUS:						
Health in general						
Very good	Ref		**0,002**[3]	Ref		0,887[3]
Good	1,34	1,06-1,70	**0,015**	0,99	0,76-1,28	0,919

Neither good nor poor	1,74	1,23-2,46	**0,002**	0,94	0,65-1,37	0,768
Poor	2,44	1,53-3,91	**0,000**	0,94	0,55-1,59	0,819
Very poor	2,96	1,14-7,73	**0,026**	1,43	0,62-3,30	0,397
Chronic condition						
Yes	1,04	0,80-1,34	0,788	1,13	0,89-1,43	0,316
No	Ref			Ref		
Asthma				Not given		
Have/have had	0,86	0,63-1,17	0,335			
Have never had	Ref					
Allergy				Not given		
Have/have had	1,41	1,14-1,74	**0,001**			
Have never had	Ref					
Cardiovascular disease				Not given		
Have/have had	1,50	0,89-2,54	0,127			
Have never had	Ref					
Headache last 3 months			Not given			
Yes				1,06	0,81-1,38	0,680
No				Ref		
Pain in body last 3 months			Not given			
Yes				1,44	1,11-1,87	**0,006**
No				Ref		
Sleeping problems last 3 months			Not given			
Yes				1,18	0,89-1,58	0,248
No				Ref		
Depressed and sad last 3 months			Not given			
Yes				1,10	0,77-1,58	0,598
No				Ref		
Tired and weak last months			Not given			
Yes				1,17	0,89-1,54	0,254
No				Ref		
Number of diseases				Not given		
0	Ref		0,402[3]			
1-2	1,17	0,90-1,53	0,246			
3-4	1,37	0,94-2,01	0,102			
5+	1,12	0,68-1,87	0,652			
HEALTHCARE USE:						
GP takes me seriously	Not given					
Totally agree				Ref		0,350[3]
Somewhat agree				1,01	0,74-1,38	0,950
Neither agree nor disagree				0,69	0,33-1,42	0,308
Somewhat disagree				0,52	0,24-1,13	0,099
Totally disagree				1,36	0,59-3,15	0,470
GP, not enough time	Not given					
Totally agree				1,55	1,09-2,19	**0,014**
Somewhat agree				1,11	0,81-1,54	0,510
Neither agree nor disagree				0,81	0,43-1,55	0,529
Somewhat disagree				0,99	0,74-1,33	0,959
Totally disagree				Ref		0,115[3]
GP last 12 months						
0	Ref		0,345[3]	Ref		**0,015**[3]
1	1,05	0,78-1,42	0,747	1,00	0,67-1,48	0,988
2	1,21	0,88-1,67	0,237	1,33	0,90-1,96	0,150
3	1,25	0,86-1,82	0,232	1,69	1,11-2,56	**0,014**
4+	1,35	0,99-1,84	0,060	1,60	1,09-2,35	**0,017**
Specialist outside hospital last 12 months						
Yes	1,18	0,94-1,48	0,160	1,23	0,98-1,55	0,073
No	Ref			Ref		
Specialist at hospital last 12 months						
Yes	1,20	0,96-1,50	0,112	0,92	0,72-1,16	0,469
No	Ref			Ref		
Psychologist last 12 months						
Yes	1,20	0,75-1,90	0,445	0,92	0,56-1,51	0,738
No	Ref			Ref		
Physiotherapist last 12 months						
Yes	1,67	1,33-2,10	**0,000**	1,19	0,92-1,53	0,188
No	Ref			Ref		
Chiropractor last 12 months						
Yes	2,57	1,96-3,36	**0,000**	1,46	1,09-1,96	**0,010**
No	Ref			Ref		
SOCIAL CONTACT:						

How often do you meet with friends?	not included, (p > 0,10)					
Almost daily				Ref		0,108[3]
Every week, but not daily				1,24	0,88-1,75	0,222
Every month, but not every week				1,49	1,01-2,20	**0,044**
A few times a year, but not every month				2,01	1,13-3,56	**0,017**
Less often than every year				1,12	0,14- 8,98	0,918
Close friends				not included, (p > 0,10)		
Yes	1,51	1,06-2,14	**0,022**			
No	Ref					
Peoples' interest in what you do				not included, (p > 0,10)		
Big	2,81	0,66-11,95	0,163			
Some	2,10	0,49-8,94	0,314			
Little	2,38	0,54-10,59	0,253			
Uncertain	1,78	0,37-8,68	0,474			
None	Ref		**0,034**[3]			
Sport			Not given			
Yes				1,41	1,12-1,77	**0,004**
No				Ref		
Meet others for hobbies			Not given			
Yes				1,41	1,05-1,88	**0,020**
No				Ref		
Participate in cultural activities			Not given			
Yes				1,16	0,84-1,61	0,363
No				Ref		
Discrimination last 12 months, health			Not given			
Yes				1,90	0,82-4,42	0,136
No				Ref		
You are not discriminated?			Not given			
Yes				Ref		
No				0,90	0,55-1,48	0,676

[1] Adjusted odds ratio (AdjOR) with 95% confidence intervals (95% CI) from multivariate logistic regression models
[2] P - value<0,05 for each year are shown in bold
[3] Overall p-value from logistic regression (p<0,05)
[4] Too few conscripts to estimate AdjOR for 2013

The increased odds of seeing a CAM practitioner in 2002 were associated with individuals having studied Transport, communications, safety and security (AdjOR 1,85) or Natural sciences, vocational and technical subjects (AdjOR 1,36), not smoking (AdjOR 1,29), having exercised once a week or more in the last year (AdjOR 1,51), having/having had allergy (AdjOR 1,41), having visited a physiotherapist (AdjOR 1,67) and a chiropractor (AdjOR 2,57) during the last 12 months, and with self-reported health status as very poor (AdjOR 2,96), poor (AdjOR 2,44), neither good nor poor (AdjOR 1,74), or good (AdjOR 1,34). The decreased odds were associated with earning totally NOK 420000-570000 (AdjOR 0,68). A 91% decrease in the odds (p=0,045) for CAM visits for those over 80 years seems to be random, since the overall p-value for all age groups is insignificant (p=0,234). The same effect can be observed for the divorced persons in both years.

In 2012, the variables which were associated with increased odds of seeing a CAM practitioner were being 25-44 years old (AdjOR 2,14), weighting either 56-65 kg (AdjOR 2,13) or 86+ (AdjOR 1,82), having experienced pain in body in the last 3 months (AdjOR

1,44), having visited a GP 3 times (AdjOR 1,69) or more than 4 times during the last year (AdjOR 1,60). Since the overall p-values for the variables were insignificant, the significant relationships with CAM visits of the following categories of variables seemed to be random: living in Eastern Norway or else (AdjOR 1,40), eating fish 5-6 times a week (AdjOR 2,41), totally agreeing with the statement about not-enough-length of a GP's consultation (AdjOR 1,55), as well as meeting with friends a few times a year, but not every month (AdjOR 2,01) or every month but not every week (AdjOR 1,49).

From the new social contact topic group only two variables were associated with increased odds of seeing a CAM practitioner in 2002: having close friends (AdjOR 1,51) and receiving interest from other people in what one does, with the overall significant p-value for the latter, though, all non-significant categories (with a category "big" having the highest AdjOR of 2,81). In 2012, participating in social life (sport - AdjOR 1,41; meeting others for hobbies - AdjOR 1,41) was associated with increased odds of CAM visits.

The results of the multivariate logistic regression (II) when controlling all variables for each other are revealed in Table 4.4. The odds that a person was a CAM visitor increased significantly at a 5% level ($p<0,05$) both in 2002 and 2012 if the individual was a female (AdjOR 2,27 in 2002; AdjOR 1,94 in 2012), and had visited a chiropractor (AdjOR 2,51 in 2002; AdjOR 1,68 in 2012), and physiotherapist in the last year (AdjOR 1,68 in 2002; AdjOR 1,31 in 2012).

Table 4.4: *Multivariate analysis (II) of visits to CAM practitioners in Norway in 2002 and 2012*

	SSB-2002[5]			**SSB-2012**[5]			**2012 vs.2002**	
	Adj OR[1]	95 % CI	P value	Adj OR[1]	95 % CI	P value	ROR[2](95 % CI)	P-value
DEMOGRAPHICS:								
Gender								
Male	Ref			Ref				
Female	2,27	1,75-2,94	**0,000**	1,94	1,48-2,55	**0,000**	0,85 (0,59-1,24)	0,413
Age (years)								
16-24	Ref		0,166[4]	Ref		**0,000**[4]		
25-44	1,23	0,85-1,78	0,282	2,34	1,40-3,91	**0,001**	1,90 (1,01-3,58)	**0,046**
45-66	1,10	0,73-1,67	0,650	1,72	0,99-2,97	0,054	1,56 (0,79-3,11)	0,203
67-79	0,21	0,03-1,57	0,128	1,38	0,64-2,96	0,411	6,57 (0,79-54,85)	0,082
80+	0,10	0,01-0,96	**0,046**	0,45	0,13-1,59	0,215	4,50 (0,33-60,77)	0,257
Civil Status								
Single	Ref		0,168[4]	Ref		0,142[4]		
Married/registered partner	1,14	0,88-1,47	0,317	0,94	0,73-1,20	0,605	0,82 (0,58 1,18)	0,290
Widow/widower/survivor	0,85	0,46-1,57	0,604	1,30	0,75-2,23	0,350	1,53 (0,67-3,48)	0,310
Separated	0,79	0,30-2,07	0,639	0,70	0,24-2,08	0,520	0,89 (0,21-3,77)	0,870
Divorced	1,51	1,04-2,19	**0,031**	1,44	0,97-2,15	0,070	0,95 (0,55-1,64)	0,864
Education								
High school graduate/less	Ref		0,384[4]	Ref		0,534[4]		
College/bachelors	0,82	0,62-1,09	0,169	1,17	0,89-1,55	0,265	1,43 (0,96-2,12)	0,078
Masters, doctorate	0,95	0,59-1,51	0,824	1,12	0,76-1,66	0,566	1,18 (0,64-2,17)	0,597

Field of study								
General programmes	Ref		**0,033**[4]	Ref		0,684[4]		
Humanities and Arts	1,29	0,86-1,95	0,219	1,30	0,83-2,06	0,254	1,01 (0,55-1,86)	0,980
Education	1,22	0,78-1,92	0,388	1,13	0,70-1,81	0,623	0,93 (0,48-1,78)	0,819
Social sciences and Law	0,87	0,42-1,81	0,708	0,88	0,48-1,63	0,693	1,01 (0,39-2,62)	0,981
Business & administration	1,23	0,91-1,66	0,181	1,30	0,92-1,84	0,130	1,06 (0,67-1,67)	0,813
Natural sciences, vocational and technical subjects	1,34	0,99-1,82	0,056	0,99	0,70-1,40	0,949	0,74 (0,47-1,17)	0,198
Health, welfare and sport	0,82	0,59-1,15	0,260	0,96	0,68-1,37	0,840	1,17 (0,72-1,90)	0,523
Primary industries	0,76	0,37-1,58	0,462	1,15	0,50-2,64	0,737	1,51 (0,50-4,56)	0,462
Transport, communications, safety and security	1,78	1,14-2,78	**0,010**	0,98	0,51-1,87	0,947	0,55 (0,25-1,21)	0,138
Primary occupation								
In work	0,54	0,07-4,10	0,550	1,42	0,83-2,43	0,195	2,63 (0,32-21,58)	0,368
Student	0,40	0,05-3,23	0,392	1,88	0,93-3,78	0,076	4,70 (0,52-42,37)	0,168
Conscript	0,56	0,03-10.04	0,693	0,00[6]	0,00- .	0,999		
Unemployed				1,23	0,47-3,22	0,675		
Disabled				1,75	0,93-3,29	0,081		
Working at home	0,40	0,05-3,08	0,377	1,50	0,40-5,61	0,543	3,75 (0,32-43,33)	0,290
Age pensioner	Ref		0,243[4]	Ref		0,600[4]		
Region								
Akershus and Oslo	Ref		0,102[4]	Ref		0,125[4]		
Hedmark and Oppland	0,91	0,62-1,33	0,630	1,21	0,82-1,77	0,332	1,33 (0,77-2,29)	0,303
Eastern Norway or else	1,18	0,90-1,57	0,235	1,27	0,95-1,70	0,104	1,08 (0,72-1,61)	0,720
Agder and Rogaland	0,80	0,58-1,10	0,168	1,05	0,76-1,46	0,760	1,31 (0,83-2,07)	0,244
Western Norway	0,84	0,61-1,13	0,251	0,81	0,58-1,12	0,200	0,96 (0,61-1,51)	0,874
Trøndelag	0,95	0,66-1,35	0,762	0,89	0,59-1,34	0,571	0,94 (0,54-1,61)	0,814
Northern Norway	0,74	0,51-1,07	0,111	0,87	0,58-1,30	0,505	1,18 (0,68-2,03)	0,563
Weight, kg								
<= 55	Ref		0,755[4]	Ref		**0,016**[4]		
56 - 65	0,99	0,69-1,40	0,946	1,98	1,25-3,15	**0,004**	2,00 (1,12-3,58)	**0,020**
66 - 75	0,87	0,61-1,24	0,438	1,39	0,86-2,22	0,175	1,60 (0,88-2,89)	0,121
76 - 85	0,89	0,60-1,31	0,560	1,65	1,01-2,72	**0,047**	1,85 (0,99-3,48)	0,055
86+	0,82	0,54-1,23	0,330	1,68	1,00-2,81	**0,049**	2,05 (1,06-3,97)	**0,033**
LIFESTYLE:								
Do you sometimes smoke?								
Yes	Ref			Ref				
No	1,32	1,08-1,61	**0,007**	0,97	0,77-1,22	0,791	0,73 (0,54-1,00)	**0,047**
Exercise past 12 months								
Never	Ref		**0,015**[4]	Ref		0,465[4]		
Less often than once a week	1,23	0,86-1,76	0,249	1,05	0,65-1,71	0,836	0,85 (0,47-1,56)	0,606
Once a week or more	1,44	1,12-1,84	**0,004**	1,22	0,84-1,77	0,303	0,85 (0,54-1,33)	0,468
HEALTH STATUS:								
Health in general								
Very good	Ref		**0,000**[4]	Ref		0,507[4]		
Good	1,33	1,06-1,68	**0,016**	1,01	0,79-1,29	0,935	0,76 (0,54-1,06)	0,109
Neither good nor poor	1,69	1,20-2,38	**0,003**	1,05	0,74-1,49	0,774	0,62 (0,38-1,01)	0,057
Poor	2,37	1,52-3,72	**0,000**	1,23	0,76-1,99	0,397	0,52 (0,27-1,00)	0,050
Very poor	4,02	1,70-9,52	**0,002**	1,94	0,90-4,20	0,092	0,48 (0,15-1,53)	0,217
Chronic condition								
Yes	1,18	0,96-1,46	0,115	1,27	1,01-1,58	**0,036**	1,08 (0,79-1,46)	0,638
No	Ref			Ref				
HEALTHCARE USE:								
GP last 12 months								
0	Ref		0,344[4]	Ref		0,058[4]		
1	1,11	0,82-1,50	0,514	1,09	0,76-1,56	0,653	0,98 (0,61-1,57)	0,939
2	1,25	0,91-1,72	0,173	1,39	0,97-2,00	0,073	1,11 (0,69-1,80)	0,666
3	1,28	0,89-1,85	0,188	1,61	1,08-2,38	**0,018**	1,26 (0,73-2,16)	0,404
4+	1,37	1,01-1,87	**0,045**	1,51	1,05-2,17	**0,025**	1,10 (0,68-1,77)	0,689
Specialist outside hospital last 12 months								
Yes	1,23	0,98-1,54	0,069	1,31	1,05-1,63	**0,016**	1,07 (0,78-1,46)	0,695
No	Ref			Ref				
Specialist at hospital last 12 months								
Yes	1,19	0,96-1,49	0,119	0,99	0,79-1,24	0,933	0,83 (0,61-1,14)	0,252
No	Ref			Ref				
Psychologist last 12 months								
Yes	1,23	0,78-1,93	0,373	1,09	0,69-1,74	0,708	0,89 (0,46-1,69)	0,714
No	Ref			Ref				

Physiotherapist last 12 months								
Yes	1,68	1,35-2,11	**0,000**	1,31	1,03-1,67	**0,028**	0,78 (0,56-1,08)	0,138
No	Ref			Ref				
Chiropractor last 12 months								
Yes	2,51	1,92-3,27	**0,000**	1,68	1,28-2,21	**0,000**	0,67 (0,46-0,98)	**0,039**
No	Ref			Ref				
SOCIAL CONTACT:								
How often do you meet with friends?								
Almost daily	Ref		0,293[4]	Ref		0,745[4]		
Every week, but not daily	0,76	0,58-0,98	**0,035**	1,04	0,76-1,43	0,809	1,37 (0,91-2,06)	0,134
Every month, but not every week	0,76	0,55-1,04	0,089	1,18	0,82-1,70	0,376	1,55 (0,96-2,52)	0,075
A few times a year, but not every month	0,89	0,53-1,48	0,657	1,26	0,72-2,20	0,416	1,42 (0,66-3,02)	0,369
Less often than every year	0,91	0,18-4,45	0,904	0,61	0,08-4,86	0,640	0,67 (0,05-9,08)	0,763
Close friends								
Yes	1,38	0,97-1,96	0,074	1,07	0,63-1,83	0,794	0,78 (0,41-1,47)	0,435
No	Ref							
Peoples' interest in what you do								
Big	2,87	0,67-12,24	0,154	0,38	0,11-1,29	0,121	0,13 (0,02-0,89)	**0,037**
Some	2,13	0,50-9,06	0,306	0,37	0,11-1,26	0,113	0,17 (0,03-1,15)	0,070
Little	2,68	0,60-11,90	0,195	0,96	0,26-3,57	0,957	0,36 (0,05-2,61)	0,311
Uncertain	1,87	0,38-9,09	0,440	0,39	0,11-1,37	0,143	0,21 (0,03-1,58)	0,130
None	Ref		**0,024**[4]	Ref		**0,012**[4]		

[1] Adjusted odds ratio (AdjOR) with 95% confidence intervals (95% CI) from multivariate logistic regression models
[2] Test of difference between two time points, with Ratio Odds Ratio (ROR). A ROR>1 indicates that AdjOR for 2012 is higher than for 2002
[3] P value <0,05 for each year and comparison are shown in bold
[4] Overall p-value for categorical variables from logistic regression showing if at least two categories of the independent variable are significantly different
[5] All variables are adjusted for all other variables in the model
[6] Too few conscripts to estimate AdjOR for 2013

In 2002, the categories of variables which were associated with increased odds of seeing a CAM practitioner were having studied Transport, communications, safety and security (AdjOR 1,78), not smoking (AdjOR 1,32), having exercised once a week or more in the last year (AdjOR 1,44), and having ranged self-reported health status from very poor (AdjOR 4,02), poor (AdjOR 2,37), neither good nor poor (AdjOR 1,69), to good (AdjOR 1,33). It seems that significant relationships of the following categories and CAM use were random due to overall insignificant p-values of the variables in question: being over 80 years old (AdjOR 0,10), divorced (AdjOR 1,51), having visited a GP more than 4 times in the last year (AdjOR 1,37), and meeting with friends every week, but not daily (AdjOR 0,76).

The increased odds of seeing a CAM practitioner in 2012 were associated with individuals aged 25-44 years old (AdjOR 2,34), having weight between 56-65 kg (AdjOR 1,98), 76-85 kg (AdjOR 1,65), or more than 86 kg (AdjOR 1,68), with some chronic condition (AdjOR 1,27), and having visited a specialist outside hospital during the last year (AdjOR 1,31). The variable on GP use in the last 12 months had an overall insignificant p-value (p=0,058), this

leads to a suggestion that significant relationships of its categories (having visited a GP 3 times with AdjOR 1,61, or more than 4 times in the last year with AdjOR 1,51) were random. Only one variable from the social contact topic group ("peoples' interest in what you do") showed significance in both years (significant overall p-values, though, with all categories being not significant).

Comparative analyses for 2002 and 2012

From Table 4.4 we can see that there was a statistically significant increase in odds of seeing a CAM practitioner from 2002 to 2012 for those being 25-44 years old (ROR 1,90); although, for 2002 the association was not significant, for 2012 being in this age group was associated with increased odds of CAM visits (AdjOR 2,34). It seems to have become more common to seek CAM for the elderly as well (the highest ROR of 6,57 was in the age group 67-79 years and ROR of 4,50 for those over 80 years), however, the change in CAM use was not confirmed statistically, and there was little data for these age groups.

The weight gradient has increased over time: having weight between 56-65 kg or over 86 kg was associated with increased odds of CAM visits when comparing 2012 to 2002 (ROR 2,00 for 56-65 kg; ROR 2,05 for 86+); though, there were no significant associations for either of weight categories and CAM visits in 2002.

The non-smoking differential has decreased during these years (ROR 0,73); though, the association with CAM visits was significant in 2002 only (AdjOR 1,32).

The gender differential has decreased during these years, females in 2012 were 1,94 times more likely to visit a CAM practitioner compared to men, while in 2002 it was 2,27 times more possible; however, the difference between years was not confirmed statistically.

Non-significant changes in user characteristics in the given time period were found for variables non-predictive of CAM use in both years, those were: civil status, levels of education, primary occupation, region, GP last 12 months, specialist at hospital, psychologist, if one has close friends, and how often one meets with friends. No changes in user profiles were discovered either for variables having one category determining CAM use in one of the

study years, e.g. those who studied Transport, communications, safety and security (AdjOR 1,78) in 2002, exercised once a week or more in the last year (AdjOR 1,44) in 2002, had self-reported health status in 2002 (AdjOR from 1,33 for good health increasing to 4,02 for very poor health), had a chronic condition (AdjOR 1,27) in 2012, visited a specialist outside hospital last year in 2012 (AdjOR 1,31), and with weight of 76-85 kg (AdjOR 1,65) in 2012.

Having used a physiotherapist (2002 AdjOR 1,68; 2012 AdjOR 1,31), as well as a chiropractor (2002 AdjOR 2,51; 2012 AdjOR 1,68) in the last year were associated with decreased odds of CAM visits; the statistically significant change between years, though, was only confirmed for chiropractor visits (ROR 0,67).

There was a statistically significant decrease in the odds of seeing a CAM practitioner from 2002 to 2012 for those having received a big interest in what they do from other people (ROR 0,13), although no categories were significant from the reference category for this variable in either of the years (significant overall p-value shows, however, that other categories have significantly different odds). In any case, this variable is hard to interpret, as the ORs go in opposite directions for 2002 compared to 2012.

CHAPTER 5: DISCUSSION

The current work is the first large study to date employing data from all of the country for time trends. The data used in the analysis was collected for a national sample of Norwegian adults, permitting estimation of CAM use for a wide variety of population subgroups; a large sample size assisted in examination of the association between CAM use and a wide range of other self-reported characteristics.

Prevalence of CAM use

The results of the study show that in 2002 (SSB-2002), **8,7%** of the population answered "yes" to the question on visits to a CAM practitioner during the last year, as compared with **9,8%** in 2012 (SSB-2012), i.e. a relative increase of **12,6%**. This is in line with other Norwegian studies (increase in CAM use was detected in the research by Steinsbekk *et al.* (2011), in the NIFAB-2007 and NAFKAM-2012 surveys), and studies worldwide, as for instance in Fox *et al.* (2010), Shmueli *et al.* (2010), and Su (2011).

Researches of the NIFAB-2007 survey claimed in their report (Nifab, 2013b; also the article by Fønnebø, 2009) that the use of CAM has increased dramatically from **8,7%** in 2002 (SSB-2002), **10,2%** in 2005 (SSB-2005) to **48,7%** in 2007 (NIFAB-2007), and that it has probably been an under-reporting of the use in previous studies. They explained a significantly higher level of CAM use by a more detailed way of asking the CAM question in 2007 (choose among 9 alternatives in NIFAB-2007, while "use of *any* form of CAM practitioner" in SSB surveys, see Table 2.4 Chapter 2) and also by division of CAM use provided by practitioners outside of and health personnel inside the health care system. However, if categories "massage" and "other", which are most likely to be non-comparable with other studies' CAM definitions, are excluded from the CAM question, the figures for the total CAM use in the last 12 months can be somewhat lower: 38,2% if "massage" is excluded, 33,9% if "other" (**33,9%**), 21,4 % if both (Nifab 2013b).

The data from the NAFKAM-2012 survey (Nifab 2013a) can be compared to some extent with that of NIFAB-2007 and SSB-2008, as it was stated in the NAFKAM report (the results of SSB-2012 were not available at the moment of performing NAFKAM-2012). It was concluded about stable overall CAM use in Norway during 2007-2012, with the CAM prevalence estimates of **33,9%** in 2007 and **34,8%** in 2012, if the category "other alternative therapies" was taken out in both years, since it was defined differently in each study. The separate question about use of self-help techniques (meditation, yoga, tai chi, qi gong) is formulated specifically for these four techniques in SSB-2008 (the prevalence rate of 6%); whereas in NAFKAM-2012, the question is formed in the way that *other* self-help techniques than only those four mentioned can be regarded as well (13%). Thus, researchers declared that such a big rise in prevalence of self-help techniques users does not necessarily imply increase in use, but may mean the under-reporting in SSB-2008 instead. The separate question about use of herbal remedies and herbal medicine is identical in both studies, with the prevalence of 11% in NAFKAM-2012 and 21,9% in SSB-2008. The high use in 2008 was explained by NAFKAM authors by the fact that some respondents erroneously meant supplements when they answered "yes" to the question about use of herbal remedies and herbal medicine; whereas, there is a separate question on use of supplements in NAFKAM-2012.

The results of the study by Steinsbekk *et al.*(2011) using data from the HUNT studies, HUNT2-1995-7 and HUNT3-2006-8, with identically formulated CAM questions with specific alternatives in both years ("During the last 12 months have you visited, homeopath,

acupuncturist, reflexologist, layer on of hands or another alternative treatment practitioner?") have shown an increase in CAM use from **9,4%** in 1997 to **12,6%** in 2008; the representativeness of the results, though, might be in question, since the surveys covered only one county in Norway.

In the following context it is quite difficult to compare the results of our analysis with those mentioned above. One can discern quite a big difference in CAM prevalence estimates in NAFKAM and NIFAB studies compared to those in SSB surveys. One probable explanation for that is the way CAM question was formulated (open question in SSB, while specific categories in NAFKAM and NIFAB studies), when persons answering to the question about "*any* CAM use in the last 12 months" might not really know which practitioner they had used was denoted as a CAM practitioner; thus, the use of CAM could be underreported. It is not quite meaningful to state a dramatic increase in CAM use as it was done in the NIFAB-2007 survey either, the researchers of which drew a conclusion on results of studies with different CAM formulations (Gran, 2009). The result on open CAM question in SSB-2005 should be treated with caution, as only 3391 individuals out of 6766 answered yes/no to the question; no information was provided on appropriate correction for non-response bias in the NIFAB report where this estimate was used either. Another possible explanation for a difference in CAM prevalence estimates in SSB surveys and NAFKAM studies might be in that Statistics' Norway living conditions surveys are general surveys without focus on CAM; while respondents in NAFKAM studies were aware of the fact that they took part in the study on CAM use, and that could, consequently, also affect the results. Thus, use of data from general surveys may be regarded as something positive and preferable, since participants would not have any expectations about what answers to CAM could be used for when responding.

The prevalence estimates of HUNT studies having the CAM question with alternatives were much lower than those in NAFKAM and NIFAB and closer to ours, but it is nevertheless unclear whether formulation of the CAM question or one county survey coverage, or underestimation due to age (HUNT participants were 20 years old and over, while 15 years and over in NAFKAM and NIFAB) was the reason for that. The representativeness problem could be potentially solved if comparing the percentage of CAM users in "Nord-Trøndelag" from a national survey (SSB) with that in one county survey (HUNT). However, it is seemingly not possible to do in our work as regional classification applied in surveys was

different: SSB used the designation "Trøndelag" as sum of two counties ("Nord-Trøndelag" and "Sør-Trøndelag"), while HUNT studies applied exclusively data on "Nord-Trøndelag", in addition, time points of data collection were different in both surveys.

In the systematic review by Harris *et al.* (2012), parts of the data used in our study (SSB-2002) were found to be reliable, and one should think that this would apply to the SSB-2012 data also, as they were collected in a similar manner. The study of Steinsbekk *et al.* (2007) using the data from HUNT2 survey, and the study by Fønnebø *et al.* (2009) employing the data from NIFAB-2007 were both assessed as non-representative for indicating national trends in CAM use because of some deviations. In the study of Steinsbekk *et al.* (2007), there was for instance not reported a sampling method. We did not find an explicit description of it either in the study of 2011 (Steinsbekk *et al.*, 2011) using the same HUNT data; though, the procedure, participation and non-participation analyses of HUNT2 and 3 can be found elsewhere (Holmen, 2003; Krokstad, 2013; Langhammer, 2012). All the inhabitants aged 20 years and over were included in the HUNT surveys and census sampling was employed; in HUNT2, 92,936 persons were invited, 65,495 (70,5%) of which participated in the survey, while of the 94,194 individuals invited in HUNT3, 50,827 (54%) participated. External validity might be threatened by decreasing participation rates in such kind of studies and lead to non-participation bias; however, most studies after HUNT2 and 3 found little evidence for substantial influence on incidence and prevalence estimates due to non-participation, while others reported underestimation for instance of psychiatric disorders or found that persons with risk behavior like smoking, high alcohol consumption or drug use were underrepresented in studies addressing these factors (Langhammer 2012:12). The discussion on how non-participation could probably influence the study results when exploring CAM use and user profiles was not present in either of Steinsbekk's *et al.* studies (2007, 2011). Again, the question about how well the results of one county CAM prevalence measurement can speak of the whole country remains arguable and needs further elaboration. The study by Fønnebø *et al.* (2009) using also data from NIFAB-2007 did not meet the quality criteria set by Harris *et al.* (2012) either, as not having reported response rate and having selection bias. The participants for the NIFAB-2007 survey were randomly sampled from Norwegians aged 15 years or more living in private households with a landline telephone or a cell phone. The landline sample (806 individuals) was drawn as stratified by location; the cell phone sample (201 persons) was taken from all owners of active Norwegian cell phone number (not

geographically stratified). As admitted in the article, the selection bias could not be eliminated in the study, it was impossible to find out whether persons who did not want to participate or were unreachable were more or less likely to use CAM. The final sample comprised a higher proportion of people with higher education and older age compared to the Norwegian population as a whole. A small underestimation of CAM use in women, for instance, could be a result of a higher proportion of older people, however, after adjustment none of the main reported results were significantly changed, as the authors claimed. We did not find a thorough description of the study methods used in NAFKAM-2012, but suppose that the sampling strategy was the same as in the NIFAB-2007 study, since it was mentioned about the update of information on CAM use in the NAFKAM report.

Thus, the prevalence rates estimated in the above-mentioned studies are affected by methodological factors. In this perspective, our study might have one major limitation - when having used the CAM prevalence question formulated in an open way (visit to *any* CAM practitioner) and being, consequently, dependent on respondents' knowledge of CAM therapies/practitioners - the prevalence could be slightly underestimated. A list with several types of CAM practitioners would probably have increased the prevalence by strengthening the respondents recall.

Predictors of 12 months CAM use

Regardless of the definition of CAM and its impact on prevalence estimates, the SSB-2002 and SSB-2012 surveys were designed with a purpose of being compared; furthermore, they utilized an identically formulated question on visits to a CAM practitioner. Hence, it should be still interesting to look at a differential change in CAM use for various groups of users between the two years.

Only 5 categories (4 variables) from the multivariate analysis II showed statistically significant difference from 2002 to 2012 at a 5% level ($p<0,05$). The variables which were associated with increased odds of seeing a CAM practitioner in 2012 compared with 2002 were being 25-44 years old (ROR 1,90), having weight between 56-65 kg (ROR 2,0) or more than 86 kg (ROR 2,05). A decrease in the odds of visiting a CAM practitioner was found for non-smokers (ROR 0,73), and those having visited a chiropractor in the last 12 months (ROR 0,67).

Due to methodological differences of the studies, it is not possible to compare the results of our analysis directly with others', as mentioned before; though, it is important to be aware of if some CAM differentials are developing in similar or different directions over time.

We did not confirm in our work, as it was done for instance in the study of Shmueli *et al.* (2010), that the education gradient in CAM visits has become stronger over time, i.e. there was an increase in the odds of visiting CAM practitioners for people with higher education (those having university level education were 3,10 times more likely to use CAM than elementary school graduates in 2007, while 2,55 times in 2000, and 1,55 in 1997). In the study of Steinsbekk *et al.* (2011), from 1997 to 2008 there was a significant decrease in the odds of visiting a CAM practitioner for males only who had a university degree. Much earlier Norwegian studies from 1985 to 1995 showed that this association was weakened (Steinsbekk *et al.*, 2009:1204). In our study education variable, in fact, was not a significant predictor of CAM visits in either of study years, see Table 4.4.

The gender differential is, seemingly, developing in the same direction in the study of Shmueli *et al.* (2010) and our work, opposing, consequently, the mainstream: while there had been an increase in the odds of CAM visits for females from 1993 to 2000, from 2000 to 2007 the ORs remained almost unchanged. In our analysis gender showed a decrease in the odds for females in 2012 compared to 2002, though, it was not statistically confirmed (p=0,413).

From 2002 to 2012 a decrease in the odds of CAM visits concerned, surprisingly, those who had visited a chiropractor in the last 12 months (ROR 0,67); that finding was also mentioned in the study of Steinsbekk *et al.* (2011), but only for females (ROR 0,60). It would be expected that people who have already used CAM services (chiropractors here) are more open to new knowledge and alternative methods of curing, and tend to use other CAM services more, though, the suggestion was not confirmed here. The reason for such a development can not be answered here and should be elaborated in further research. Possibly, it has to do with the status of practice, since chiropractors have become authorized health personnel in Norway. Other variables on health care use (GP, specialist at hospital, psychologist last 12 months) turned out to be non-predictive of CAM use in either of years in the final regression model. However, those who had visited a specialist outside hospital in the last year got increased odds of CAM visits in 2012, and those who had visited a physiotherapist got decreased odds of visiting a CAM practitioner, although with statistically non-significant change in years for both variables. An increase in the odds of resorting to CAM services was

found for patients having a chronic condition (OR 1,27), though, the change between years was statistically insignificant. Steinsbekk *et al.* (2011) pointed out an increase in the odds of visiting for those having a chronic complaint as well, but for females only.

A 27% decrease in the odds of visiting a CAM practitioner from 2002 to 2012 was discerned for non-smokers (ROR 0,73). In the study of Steinsbekk *et al.* (2011), no significant change was found from 1997 to 2008 for both males and females; though, daily smoking was a significant predictor with decreased odds of visiting a CAM practitioner in both years for both genders.

Interestingly enough, from 2002 to 2012 there was also found an increase in the odds of seeing a CAM practitioner for those having weight of either 56-65 kg (ROR 2,00) or 86+ (ROR 2,05). Such a development was not observed elsewhere, and why this was the case here - should be studied further. One speculation could, probably, be that people in those two weight categories are more exposed to constantly changing perceptions of well-being, positive physical image, and are also more obsessed of either sustaining or decreasing their weight by employing different techniques, where CAM consumption is constantly gaining a bigger part.

A significant change in CAM use from 2002 to 2012 was discovered for those being in the age group 25-44 years, their odds of visiting a CAM practitioner increased by 1,90 times compared to those in the age group 16-24 years. Our finding is, consequently, consistent with that in the study of Steinsbekk *et al.* (2011), where CAM use from 1997 to 2008 increased most in younger people of both genders. This new trend in consumption is hard to explain, and further research is needed; though, one speculation was presented by Steinsbekk built on his earlier research (Steinsbekk, 2003) which showed an increase in the proportion of children visiting homeopaths in Norway in 1985-1998. If those children continued to use CAM, they could constitute a part of younger group of CAM users in the present study and explain some of the increase in consumption.

Social contact variables given in both study years turned out to be not predictive of CAM use in our study. It seems that having few/many friends and meeting with them often/very seldom is not related to visits to CAM practitioners. The results on the variable "peoples' interest in what you do" were considered as somewhat difficult to interpret and inconclusive, since the development was opposite for these two years (increased odds in 2002, decreased odds in 2012). However, there was a significant decrease in the odds of visiting a CAM practitioner in

the period for those having received a big interest in what they did (ROR 0,13). The reason for this is unclear, and it is difficult to draw any conclusions for this particular variable.

It is possible that inclusion of other independent variables in the analyses could have changed the results, however, socio-demographic and health-related variables most likely to predict CAM use based on previous evidence were employed (as well as some absolutely new ones). Because of the cross-sectional nature of the study when data is collected at a single point in time, we cannot produce consecutive annual estimates on CAM use, neither can we conclude on causality in the interpretation of results. However, this is perhaps of more importance when studying the relationship between health/illnesses and CAM use, than when considering demographic associations. In that case, prospective data should be used in order to explore whether people start CAM use prior or consequent to developing specific conditions (Bishop, 2010).

CHAPTER 6: SUMMARY AND CONCLUSION

Constantly more and more people are turning to Complementary and Alternative Medicine (CAM) worldwide. Such a development could not be overlooked by researchers who have recently devoted their attention to examining the patterns of CAM utilization and user profiles. However, there is an evident need in more comprehensive and methodologically rigorous studies, and there is a lack of population-based studies comparing prevalence rates and user characteristics over time. The main strength of the following work is that it is the first one to date in Norway comparing changes in CAM user characteristics over time employing the data from two large population-based surveys, with a clear description of the data collection and a large number of participants.

This master thesis' intention was to shed light on the use of CAM and its development over the past 10 years in Norway. By employing data describing CAM consumption from two population-based surveys provided by Statistics Norway, it was found that CAM use in the form of visits to CAM practitioners in the last 12 months in the Norwegian population aged 16 years and over increased significantly from 8,4% to 9,8% between 2002 and 2012. Ratio Odds Ratio (ROR) from the binary logistic regression models was an analytical tool used to explore how the profiles of CAM users have changed from 2002 to 2012. Some of the key common suggestions found in the research globally were not supported in the study, as for example, that education gradient in CAM use has increased significantly over years;

education, in fact, was not assessed as the determinant of CAM use in the multivariate models in either of years. The study replicates the common finding that females are the most frequent CAM users, but it was also shown that the gender difference did not increase over time. An unexpected result was also for those having visited a chiropractor in the last 12 months, with decreased odds of seeing a CAM practitioner over time.

Since middle-aged patients were reported to be the most probable CAM users in the bulk of the previous research, our finding that younger people in the age group 25-44 years, with increased odds of resorting to CAM services between 2002 and 2012, indicates then a change in the age of those who consult, i.e. a new trend in CAM consumption. That finding was in line with the former research of Steinsbekk's *et al*. (2011). The new social contact group variables turned out to be not predictive of CAM use in our study. Other results showed that weight differential increased over time for those having weight of either 56-65 kg or over 86 kg, while non-smokers got decreased odds of seeing a CAM practitioner from 2002 to 2012.

The prevalence rates of CAM use and user characteristics nationally and worldwide vary widely in the literature. When comparing our findings with the previous research, it should be taken into consideration that any differences in the results can be attributable not only to discernible trends over time or distinct differences between the countries, but rather to sampling methods, an international disagreement on how to classify a person as a CAM user in particular, with different surveys including different CAM modalities. Future Norwegian population studies can, consequently, benefit from employing standardized questions to explore CAM use.

While the following study provides evidence on patterns of CAM use, it does not consider the *why* question, i.e. why there was an increase in the CAM use totally and different changes in consumption for certain user groups over time. Possible explanations for that could for example include: an increased influence of more sophisticated marketing tools, a greater availability of information on the internet, changing perceptions and values in the society as strengthening the individualistic nature of a person-consumer, emphasizing the importance of being healthy, athletic, young looking, or the desire to be actively involved in all decision-making processes which is not fully supported by the conventional medicine. Future research can address these relevant questions.

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APPENDIX

Appendix I. Table 1. Description of the variables

CAM VISITOR:

N	Study	Short names of the variables in the original data	Variable	Coding
0	2012	V230, Altern	During the last 12 months, have you visited any type of CAM practitioner?	1. Yes 2. No 8. Don't want to answer 9. Don't know
			During the last 12 months, have you visited:	
		V231, Alt_Homeopat	Homeopath	
		V233, Alt_akupunktor	Acupuncturist	
		V235, Alt_refleksolog	Reflexologist (foot zone therapist)	
		V237,Alt_aromaterapeut	Aroma therapist	
		V239,Alt_massasjeterap	Massage therapist	
		V241, Alt_naprapat	Naprapath	
		V243, Alt_osteopat	Osteopath	
		V245, Alt_healer	Healer	
		V247, Alt_annet	Another alternative treatment practitioner	
0.	2002	V0415, Altern	During the last 12 months, have you visited any type of CAM practitioner?	

II. DEMOGRAPHICS:

1	2012	V624, IOs kjønn	Gender	1. Man 2. Woman 8. Don't want to answer 9. Don't know
1.	2002	V0004, IOKjonn		
2	2012	V005, AldGrupp	Age group	1. 16-24 y.o 2. 25-44 y.o 3. 45-66 y.o. 4. 67-79 y.o. 5. 80 + y.o. 8. Don't want to answer 9. Don't know
2.	2002	V0003, AldGrupp		
3	2012	V010, Sivstat	Civil status	1. Single 2. Married/registered partner 3. Widow/widower/survivor 4. Separated 5. Divorced 8. Don't want to answer 9. Don't know
3.	2002	V0008, IOsivstat		
4	2012	V620, Utdnivaa	Education: (1) Level of education	0. No education or preschool level 1. Primary school level (1-7 grades) 2. Lower secondary level (8-10) 3. Upper secondary basic school (11-12) 4. Upper secondary final year school (13+) 5. Supplementary programme for general university and college admissions certification (14+) 6. University/university college 1 (14-17) 7. University/university college 2 (18-19) 8. Researcher level (20+) 9. Unknown education level
4.	2002	V0556, Utdnivaa		
5	2012	V621, Fagfelt	(2) Field of study	0. General programmes 1. Humanities and Arts 2. Education 3. Social sciences and Law 4. Business and administration 5. Natural sciences, vocational and technical subjects
5.	2002	V0557, Fagfelt		

				6. Health, welfare and sport 7. Primary industries 8. Transport and communications, safety and security and other services 9. Unknown field
6	2012	V638, Selvsosstat	Work: Primary occupation	1. Employed, full time 2. Employed, part-time 3. Self-employed, full time 4. Self-employed, part-time 5. Unemployed 6. Student or pupil in vocational training 7. Age or contractual pensioners 8. Disabled or unable to work 9. Conscript 10. Working at home 11. Other inactive person
6.	2002	V0560, IOhovedb		1. In work 2. Student 3. Conscript 4. Unemployed 5. Socially insured 6. Age pensioner 7. Working at home
7	2012	Not given	Total household income before tax	This variable is numeric
7.	2002	V1150, Aggi_18_su		
8	2012	V464, Landsdel	Region	1. Akershus and Oslo 2. Hedmark and Oppland 3. Eastern Norway or else 4. Agder and Rogaland 5. Western Norway 6. Trøndelag 7. Northern Norway 8. Don't want to answer 9. Don't know
8.	2002	V0005,Landsdel		
9	2012	V368, Vekt	Weight: how much do you weigh without clothes and shoes?	This variable is numeric
9.	2002	V0453, Vekt		

III. LIFESTYLE:

10	2012	V356, H30a	Do you sometimes smoke?	1. Yes 2. No 8. Don't want to answer 9. Don't know
10.	2002	V0451, H30a		
11	2012	V369, NyH33	Physical activity and exercise: How often do you usually exercise in your spare time during the past 12 months?	1. Never 2. Less often than once a week 3. Once a week or more 8. Don't want to answer 9. Don't know
11.	2002	V0457, H33		
12	2012	V375, Fisk_1	Diet: (1) How often do you usually eat fish or other seafood for dinner?	1. Once a day 2. 5-6 times a week 3. 2-4 times a week 4. Once a week 5. Or less than once a week 8. Don't want to answer 9. Don't know
12.	2002	Not given		
13	2012	V378, Kost2	(2) How often do you usually eat vegetables (disregard potatoes and vegetable juices)?	1. 3 or more times a day 2. 2 times a day 3. Once a day 4. 5-6 times a week 5. 2-4 times a week 6. Once a week 7. Or less than once a week 8. Don't want to answer 9. Don't know
13.	2002	Not given		
14	2012	V377, Kost1	(3) How often do you usually eat fresh fruit and berries (disregard juice)?	
14.	2002	Not given		

IV. HEALTH STATUS:

15	2012	V048, H1	How do you rate your own health in general?	1. Very good 2. Good 3. Neither good nor poor 4. Poor 5. Very poor
15.	2002	V0085, H1		

				8. Don't want to answer 9. Don't know
16	2012	V049, H2a	Presence of the chronic condition: Do you have any long standing illness or disorder, a congenital disease or effect of injury?	1. Yes 2. No 8. Don't want to answer 9. Don't know
16.	2002	V0087, H2a		
17	2012	Not given	Diseases: (1) Do you or have you had asthma?	1. Have 2. Have had 3. Have never had 8. Don't want to answer 9. Don't know
17.	2002	V0192, prekod3		
18	2012	Not given	(2) Do you or have you had allergy?	
18.	2002	V0195, prekod6		
19	2012	Not given	(3) Cardiovascular disease Acute myocardial infarction Angina pectoris Stroke	
19.	2002	V0199, prekod10 V0198, prekod9 V0200, prekod11		
20	2012	Not given	Number of diseases registered	This variable is numeric (0-15)
20.	2002	V0195, prekod6		
21	2012	V113, H9_1	Recent complaints: Have you had any of these problems in the last three months: (1) Pain in body?	1. Yes 2. No 8. Don't want to answer 9. Don't know
21.	2002	Not given		
22	2012	V114, H9_2	(2) Headache?	
22.	2002	Not given		
23	2012	V122, H9_10	(3) Depressed and sad?	
23.	2002	Not given		
24	2012	V125, H9_13	(4) Sleeping problems?	
24.	2002	Not given		
25	2012	V126, H9_14	(5) Tired and weak?	
25.	2002	Not given		

V. HEALTH CARE USE:

26	2012	V192, Lege7a	GP takes me and my problems seriously:	1. Totally agree 2. Somewhat agree 3. Neither agree nor disagree 4. Somewhat disagree 5. Totally disagree 8. Don't want to answer 9. Don't know
26.	2002	Not given		
27	2012	V194, Lege7c	GP doesn't give me enough time:	
27.	2002	Not given		
28	2012	V182, H13a	How many contacts did you have with regular or another GP at the GP office, out-of-hours emergency primary health care, school-, student- or occupational health care services last 12 months?	This variable is numeric
28.	2002	V0396, H13a		
29	2012	V197, H14	Have you been to a specialist doctor outside the hospital during the past 12 months?	1. Yes 2. No 8. Don't want to answer 9. Don't know
29.	2002	V0403, H14		
30	2012	V199, H16	Have you been to a specialist doctor at the hospital during the past 12 months? (don't include hospital admission)	
30.	2002	V0405, H16		
31	2012	V203, H15ps	Have you been to a psychologist during the past 12 months?	
31.	2002	V0409, H15		
32	2012	V224, Fysio	Have you been to a physiotherapist during the past 12 months?	
32.	2002	V0411, Fysio		
33	2012	V226, Kiro	Have you been to a chiropractor during the past 12 months?	
33.	2002	V0413, Kiro		

VI. SOCIAL CONTACT:

34	2012	V404, SK6	How often do you meet with your good friends?	1. Almost daily 2. About every week, but not daily 3. About every month but not every week 4. A few times a year, but not every month
34.	2002	V0471, SK6		

				5. Less often than every year 8. Don't want to answer 9. Don't know
35	2012	V406, SK7	Close friends: Do you have someone who is close to you, and you can talk to confidentially?	1. Yes 2. No 8. Don't want to answer 9. Don't know
35.	2002	V0472, SK7		
36	2012	V408, Intr1	How much interest do other people show in what you do?	1. Big 2. Some 3. Neither big nor small 4. Small 5. None 8. Don't want to answer 9. Don't know
36.	2002	V0475, Inter		1. Big 2. Some 3. Small 4. None 5. Uncertain 8. Don't want to answer 9. Don't know
37	2012	V411, PlaySpor1	Interaction with others in spare time: (1) Do you participate in any sport activities?	1. Yes 2. No 8. Don't want to answer 9. Don't know
37.	2002	Not given		
38	2012	V425, HobbInt1	(2) Do you meet others for cultivating common hobbies or interests?	
38.	2002	Not given		
39	2012	V432, CineThe1	(3) Do you participate in cultural activities (cinema, theater, opera, concerts, museums, art exhibitions)?	
39.	2002	Not given		
40	2012	V386, Disk_Helse	Discrimination during the past 12 months due to: Health	1. Yes 2. No 8. Don't want to answer 9. Don't know
40.	2002	Not given		
41	2012	V393, Disk_Ikke	You are not discriminated:	
41.	2002	Not given		

Appendix II.

Table 1. Bivariate analysis of visits to CAM practitioners in Norway in 2002 and 2012

	SSB-2002					SSB-2012					2012 vs. 2002	
	N	% seen CAM	P value	OR[3]	95 % CI	N	% seen CAM	P value	OR[3]	95 % CI	Diff	P value[4]
Seen a CAM practitioner	6827	8,4 %				5657	9,8 %				1,4 %	**0,007**
DEMOGRAPHICS:												
Gender			0,000[1]					0,000[1]				
Male	3410	5,6 %	Ref			2804	6,4 %	Ref			0,8 %	0,185
Female	3417	11,9 %	0,000[2]	2,27	1,90-2,71	2853	13,2 %	0,000[2]	2,21	1,84-2,66	1,3 %	0,121
Age (years)			0,000[1]					0,000[1]				
16-24	909	7,3 %	Ref			787	6,1 %	Ref			-1,2 %	0,326
25-44	2529	9,8 %	0,021[2]	1,39	1,05-1,85	1687	12,6 %	0,000[2]	2,21	1,60-3,06	2,8 %	**0,004**
45-66	2379	10,1 %	0,013[2]	1,43	1,08-1,90	2176	10,8 %	0,000[2]	1,85	1,34-2,56	0,7 %	0,440
67-79	743	4,7 %	0,033[2]	0,63	0,41-0,96	798	6,9 %	0,522[2]	1,14	0,76-1,70	2,2 %	0,066
80+	267	2,2 %	0,005[2]	0,30	0,13-0,68	209	3,3 %	0,128[2]	0,53	0,24-1,20	1,1 %	0,461
Civil Status			0,000[1]					0,009[1]				
Single	2337	7,9 %	Ref			2127	9,2 %	Ref			1,3 %	0,120
Married/registered partner	3481	9,3 %	0,068[2]	1,19	0,99-1,44	2823	9,7 %	0,550[2]	1,06	0,87-1,29	0,4 %	0,590
Widow/widower/survivor	421	4,3 %	0,010[2]	0,52	0,32-0,86	298	9,1 %	0,952[2]	0,99	0,65-1,50	4,8 %	**0,009**
Separated	81	9,9 %	0,513[2]	1,28	0,61-2,70	58	13,8 %	0,235[2]	1,58	0,74-3,39	3,9 %	0,478
Divorced	506	12,6 %	0,001[2]	1,69	1,25-2,29	350	15,1 %	0,001[2]	1,77	1,27-2,45	2,5 %	0,295
Education			**0,477[1]**					0,000[1]				
High school graduate/less	4706	8,9%	Ref			3394	8,7 %	Ref			-0,2 %	0,754
College/bachelors	1555	9,2%	0,707[2]	1,04	0,85-1,27	1549	12,5 %	0,000[2]	1,49	1,23-1,80	3,3 %	**0,003**
Masters, doctorate	362	7,2%	0,271[2]	0,79	0,53-1,20	517	9,7 %	0,479[2]	1,12	0,82-1,54	2,5 %	0,195
Field of study			0,024[1]					0,000[1]				
General programmes	2126	8, 2 %	Ref			1836	8,3 %	Ref			0,1 %	0,909
Humanities and Arts	354	11,3 %	0,059[2]	1,42	0,99-2,04	294	13,9 %	0,002[2]	1,78	1,23-2,58	2,6 %	0,319
Education	411	10,9 %	0,074[2]	1,37	0,97-1,94	346	12,7 %	0,010[2]	1,60	1,12-2,29	1,8 %	0,443
Social sciences and Law	149	6,7 %	0,512[2]	0,80	0,41-1,55	194	9,3 %	0,652[2]	1,12	0,67-1,88	2,6 %	0,384
Business & administration	878	10,8 %	0,024[2]	1,35	1,04-1,76	675	12,6 %	0,001[2]	1,58	1,20-2,10	1,8 %	0,272
Natural sciences, vocational and technical subjects	1438	7,6 %	0,481[2]	0,91	0,71-1,17	1079	7,2 %	0,287[2]	0,86	0,64-1,14	-0,4 %	0,705
Health, welfare and sport	781	9,0 %	0,529[2]	1,10	0,82-1,47	732	12,6 %	0,001[2]	1,58	1,20-2,08	3,6 %	**0,024**
Primary industries	177	5,6 %	0,228[2]	0,67	0,35-1,29	92	7,6 %	0,806[2]	0,91	0,41-1,99	2,0 %	0,521
Transport, communications, safety and security	282	11 %	0,121[2]	1,38	0,92-2,06	164	8,5 %	0,928[2]	1,03	0,58-1,82	-2,5 %	0,398
Primary occupation			0,000[1]					0,000[1]				
In work	4637	9,7 %	0,000[2]	2,47	1,77-3,46	3466	10,5%	0,000[2]	1,79	1,36-2,35	0,8 %	0,236
Student	437	6,6 %	0,049[2]	1,64	1,00-2,70	625	8,2%	0,113[2]	1,36	0,93-1,99	1,6 %	0,331
Conscript	22	4,5 %	0,926[2]	1,10	0,14-8,40	3	0,0%	0,999[2]	0,00[5]	0,00-.	-4,5 %	0,708
Unemployed	0	0 %				102	9,8%	0,154[2]	1,66	0,83-3,35	9,8 %	1,000
Disabled	0	0%				309	16,5%	0,000[2]	3,03	2,05-4,47	16,5 %	1,000
Working at home	789	10 %	0,000[2]	2,57	1,73-3,82	34	11,8%	0,193[2]	2,04	0,70-5,97	1,8 %	0,733
Age pensioner	941	4,1 %	Ref			1060	6,1%	Ref			2,0 %	0,044
Total household income before tax			0,005[1]			Not given						
≤ 270000	1340	7,3%	Ref									
270001 - 420000	1356	7,6%	0,780[2]	1,04	0,78-1,39							
420001 - 570000	1395	8,1%	0,441[2]	1,12	0,84-1,48							
570001 - 720000	1239	10,4%	0,006[2]	1,47	1,12-1,94							
720001+	1493	10,2%	0,006[2]	1,45	1,11-1,89							
Region			0,047[1]					0,019[1]				
Akershus and Oslo	1445	9,6%	Ref			1373	10,7%	Ref			1,1 %	0,333
Hedmark and Oppland	589	8,1%	0,321[2]	0,84	0,60-1,18	439	11,4%	0,689[2]	1,07	0,76-1,51	3,3 %	0,074
Eastern Norway or else	1219	10,8%	0,276[2]	1,15	0,89-1,48	1076	11,7%	0,434[2]	1,11	0,86-1,42	0,9 %	0,495
Agder and Rogaland	1025	7,7%	0,112[2]	0,79	0,59-1,06	790	9,7%	0,481[2]	0,90	0,67-1,20	2,0 %	0,131
Western Norway	1170	7,8%	0,111[2]	0,80	0,61-1,05	960	7,7%	0,015[2]	0,70	0,52-0,93	-0,1 %	0,932
Trøndelag	682	8,4%	0,374[2]	0,86	0,62-1,19	490	8,0%	0,083[2]	0,72	0,50-1,04	-0,4 %	0,806
Northern Norway	697	7,3%	0,089[2]	0,75	0,53-1,04	529	8,1%	0,094[2]	0,74	0,52-1,05	0,8 %	0,602
Weight, kg			0,000[1]					0,000[1]				
<= 55	517	10,8%	Ref			394	7,9%	Ref			-2,9 %	0,140
56 - 65	1486	11,0%	0,898[2]	1,02	0,74-1,41	1154	13,8%	0,002[2]	1,87	1,25-2,80	2,8 %	**0,029**
66 - 75	1793	8,6%	0,129[2]	0,78	0,56-1,08	1453	9,6%	0,302[2]	1,24	0,82-1,86	1,0 %	0,323
76 - 85	1564	7,6%	0,023[2]	0,68	0,48-0,95	1270	8,7%	0,588[2]	1,12	0,74-1,70	1,1 %	0,286
86+	1467	7,0%	0,005[2]	0,61	0,44-0,87	1301	8,5%	0,677[2]	1,09	0,72-1,65	1,5 %	0,140
LIFESTYLE:												
Do you sometimes smoke?			0,095[1]					**0,823[1]**				

Yes	2582	8,0%	Ref			1402	9,7%	Ref			1,7 %	0,068
No	4231	9,2%	0,096[2]	1,16	0,97-1,39	4240	9,9%	0,823[2]	1,02	0,83-1,25	0,7 %	0,273
Exercise past 12 months			0,001[1]					**0,108[1]**				
Never	1719	6,6%	Ref			572	7,5%	Ref			0,9 %	0,460
Less often than once a week	745	8,1%	0,206[2]	1,23	0,89-1,70	519	9,2%	0,303[2]	1,25	0,82-1,93	1,1 %	0,491
Once a week or more	4344	9,7%	0,000[2]	1,51	1,22-1,88	4544	10,2%	0,042[2]	1,40	1,01-1,94	0,5 %	0,431
Eating vegetables	Not given							0,000[1]				
3 or more times a day						236	13,1%	0,012[2]	2,44	1,22-4,90		
2 times a day						672	14,3%	0,002[2]	2,69	1,45-5,02		
Once a day						2863	10,3%	0,042[2]	1,86	1,02-3,37		
5-6 times a week						713	7,6%	0,393[2]	1,32	0,69-2,53		
2-4 times a week						946	7,2%	0,486[2]	1,25	0,66-2,36		
Once a week or less						206	5,8%	Ref				
Eating fish	Not given							0,054[1]				
Once a day						73	6,8 %	0,588[2]	0,77	0,30-1,99		
5-6 times a week						132	16,7%	0,008[2]	2,09	1,21-3,60		
2-4 times a week						3338	9,6%	0,524[2]	1,11	0,81-1,52		
Once a week						1531	10,5%	0,247[2]	1,22	0,87-1,71		
Less than once a week						561	8,7%	Ref				
Eating fruit and berries	Not given							0,058[1]				
3 or more times a day						583	12,5%	0,011[2]	1,69	1,13-2,53		
2 times a day						1230	8,9%	0,438[2]	1,16	0,80-1,68		
Once a day						1769	10,6%	0,060[2]	1,40	0,99-2,00		
5-6 times a week						486	10,5%	0,139[2]	1,38	0,90-2,13		
2-4 times a week						1042	8,9%	0,456[2]	1,16	0,79-1,70		
Once a week or less						525	7,8%	Ref				
HEALTH STATUS:												
Health in general			0,000[1]					0,001[1]				
Very good	2304	6,4%	Ref			1689	8,6%	Ref			2,2 %	**0,008**
Good	3224	8,9%	0,001[2]	1,42	1,15-1,74	2696	9,4%	0,370[2]	1,10	0,89-1,37	0,5 %	0,506
Neither good nor poor	883	11,3%	0,000[2]	1,86	1,42-2,43	823	11,3%	0,030[2]	1,36	1,03-1,79	0,0 %	1,000
Poor	346	15,0%	0,000[2]	2,58	1,84-3,61	368	13,6%	0,003[2]	1,67	1,19-2,36	-1,4 %	0,593
Very poor	65	15,4%	0,006[2]	2,65	1,32-5,30	73	19,2%	0,003[2]	2,53	1,38-4,64	3,8 %	0,557
Chronic condition			0,000[1]					0,000[1]				
Yes	2560	11,2%	0,000[2]	1,63	1,37-1,92	2383	11,7%	0,000[2]	1,44	1,21-1,72	0,5 %	0,581
No	4260	7,2%	Ref			3271	8,4%	Ref			1,2 %	0,053
Asthma			0,010[1]			Not given						
Have/have had	687	11,4%	0,011[2]	1,39	1,08-1,79							
Have never had	6133	8,4%	Ref									
Allergy			0,000[1]			Not given						
Have/have had	1879	12,4%	0,000[2]	1,79	1,50-2,13							
Have never had	4931	7,3%	Ref									
Cardiovascular disease			0,025[1]			Not given						
Have/have had	6401	8,9%	0,026[2]	1,61	1,06-2,45							
Have never had	418	5,7%	Ref									
Headache last 3 months					Not given			0,000[1]				
Yes						956	14,6%	0,000[2]	1,76	1,44-2,17		
No						4696	8,9%	Ref				
Pain in body last 3 months					Not given			0,000[1]				
Yes						1302	15,4%	0,000[2]	2,05	1,71-2,47		
No						4350	8,2%	Ref				
Sleeping problems last 3 months					Not given			0,000[1]				
Yes						918	15,4%	0,000[2]	1,89	1,54-2,32		
No						4734	8,8%	Ref				
Depressed and sad last 3 months					Not given			0,000[1]				
Yes						521	16,3%	0,000[2]	1,93	1,50-2,48		
No						5131	9,2%	Ref				
Tired and weak last 3 months					Not given			0,000[1]				
Yes						1173	15,6%	0,000[2]	2,03	1,68-2,46		
No						4479	8,3%	Ref				
Number of diseases			0,000[1]			Not given						
0	2878	6,3%	Ref									
1-2	2809	9,9%	0,000[2]	1,63	1,34-1,98							
3-4	710	12,4%	0,000[2]	2,11	1,61-2,76							
5+	362	10,8%	0,002[2]	1,80	1,25-2,59							
HEALTHCARE USE:												
GP takes me seriously	Not given							0,040[1]				
Totally agree						4267	9,9%	Ref				
Somewhat agree						609	12,3%	0,062[2]	1,28	0,99-1,67		
Neither agree nor disagree						202	5,9%	0,069[2]	0,58	0,32-1,04		

Somewhat disagree						128	7,8%	0,443[2]	0,77	0,40-1,49		
Totally disagree						66	15,2%	0,159[2]	1,63	0,83-3,22		
GP, not enough time	Not given							0,000[1]				
Totally agree						462	14,3%	0,001[2]	1,65	1,24-2,21		
Somewhat agree						610	12,1%	0,023[2]	1,37	1,04-1,80		
Neither agree nor disagree						263	5,7%	0,062[2]	0,60	0,35-1,02		
Somewhat disagree						866	10,4%	0,271[2]	1,15	0,90-1,48		
Totally disagree						3059	9,2%	Ref				
GP last 12 months			0,000[1]					0,000[1]				
0	1711	5,6%	Ref			975	6,1%	Ref			0,5 %	0,593
1	1517	6,6%	0,244[2]	1,19	0,89-1,58	1244	6,9%	0,415[2]	1,15	0,82-1,62	0,3 %	0,754
2	1060	8,7%	0,002[2]	1,60	1,19-2,15	1040	9,5%	0,004[2]	1,63	1,17-2,28	0,8 %	0,524
3	630	9,5%	0,001[2]	1,77	1,26-2,48	625	12,0%	0,000[2]	2,12	1,48-3,03	2,5 %	0,153
4+	1779	12,5%	0,000[2]	2,41	1,88-3,09	1622	13,3%	0,000[2]	2,38	1,77-3,22	0,8 %	0,487
Specialist outside hospital last 12 months			0,000[1]					0,000[1]				
Yes	1165	13,3%	0,000[2]	1,81	1,49-2,20	1352	14,3%	0,000[2]	1,80	1,50-2,17	1,0 %	0,469
No	5648	7,8%	Ref			4296	8,4%	Ref			0,6 %	0,276
Specialist at hospital last 12 months			0,000[1]					0,000[1]				
Yes	1518	12,1%	0,000[2]	1,63	1,36-1,96	1662	12,0%	0,000[2]	1,40	1,16-1,68	-0,1 %	0,931
No	5296	7,8%	Ref			3987	8,9%	Ref			1,1 %	0,057
Psychologist last 12 months			0,007[1]					0,005[1]				
Yes	217	13,8%	0,008[2]	1,71	1,15-2,54	229	15,3%	0,005[2]	1,70	1,17-2,46	1,5 %	0,654
No	6600	8,6%	Ref			5419	9,6%	Ref			1,0 %	0,057
Physiotherapist last 12 months			0,000[1]					0,000[1]				
Yes	1010	17,1%	0,000[2]	2,63	2,17-3,18	1038	15,1%	0,000[2]	1,88	1,54-2,29	-2,0 %	0,218
No	5807	7,3%	Ref			4610	8,7%	Ref			1,4 %	**0,009**
Chiropractor last 12 months			0,000[1]					0,000[1]				
Yes	483	20,9%	0,000[2]	3,12	2,46-3,96	536	17,2%	0,000[2]	2,08	1,63-2,65	-3,9 %	0,132
No	6334	7,8%	Ref			5112	9,1%	Ref			1,3 %	**0,013**
SOCIAL CONTACT:												
How often do you meet with friends?			**0,939[1]**					0,095[1]				
Almost daily	1316	9,3%	Ref			948	7,9%	Ref			-1,4 %	0,244
Every week, but not daily	3592	9,0%	0,740[2]	0,96	0,77-1,20	3134	10,1%	0,050[2]	1,30	1,00-1,69	1,1 %	0,125
Every month, but not every week	1425	8,4%	0,434[2]	0,90	0,69-1,17	1197	11,0%	0,016[2]	1,44	1,07-1,94	2,6 %	**0,024**
A few times a year, but not every month	310	8,4%	0,627[2]	0,90	0,57-1,39	222	10,8%	0,164[2]	1,41	0,87-2,29	2,4 %	0,350
Less often than every year	26	7,7%	0,784[2]	0,82	0,19-3,49	27	3,7%	0,434[2]	0,45	0,06-3,34	-4,0 %	0,529
Close friends			0,000[1]					**0,488[1]**				
Yes	5773	9,5%	0,000[2]	2,22	1,63-3,03	5359	9,9%	0,489[2]	1,17	0,75-1,81	0,4 %	0,476
No	1019	4,5%	Ref			266	8,6%	Ref			4,1 %	**0,008**
Peoples' interest in what you do			0,000[1]					**0,156[1]**				
Big	2611	10,6 %	0,022[2]	5,20	1,27-21,24	2673	10,1%	0,796[2]	0,87	0,30-2,49	-0,5 %	0,551
Some	3457	7,9%	0,065[2]	3,76	0,92-15,34	2142	9,6%	0,712[2]	0,82	0,29-2,35	1,7 %	**0,027**
Little	396	7,6%	0,083[2]	3,61	0,85-15,38	134	16,4%	0,469[2]	1,52	0,49-4,75	8,8 %	**0,003**
Uncertain	204	5,9%	0,192[2]	2,75	0,60-12,55	598	8,9%	0,607[2]	0,75	0,26-2,22	3,0 %	0,176
None	90	2,2%	Ref			35	11,4%	Ref			9,2 %	**0,030**
Sport					Not given			0,000[1]				
Yes						2920	11,3%	0,000[2]	1,40	1,17-1,67		
No						2710	8,3%	Ref				
Meet others for hobbies					Not given			0,009[1]				
Yes						4355	10,4%	0,009[2]	1,35	1,08-1,69		
No						1270	8,0%	Ref				
Participate in cultural activities					Not given			0,001[1]				
Yes						4637	10,5%	0,001[2]	1,57	1,20-2,04		
No						990	7,0%	Ref				
Discrimination last 12 months, health					Not given			0,000[1]				
Yes						77	22,1%	0,000[2]	2,64	1,53-4,55		
No						5560	9,7%	Ref				
You are not discriminated?					Not given			0,014				
Yes						5303	9,6%	Ref				
No						334	13,8%	0,014	1,50	1,08-2,08		

[1] P-value<0,10 from X^2 test, insignificant values are shown in red bold for each year
[2] P-value<0,10 from binary logistic regression
[3] Odds Ratio (OR) with 95% confidence intervals (95%CI) from bivariate logistic regression
[4] P-value<0,05 from test of proportions are shown in green bold, with a positive difference (Diff) indicating higher prevalence in 2012
[5] Too few conscripts to estimate AdjOR for 2013